

National Safety News

An abstract geometric composition featuring several white cylinders and rectangular blocks of varying sizes and orientations, creating a sense of depth and perspective against a dark background. The shapes are arranged in a way that suggests architectural or industrial structures.

MARCH 1951

1951

ANNUAL SAFETY EQUIPMENT ISSUE

SELF-CONTAINED BREATHING APPARATUS

For oxygen-deficient and highly toxic atmospheres. Chemox . . . Demand Type . . . and 1-hour Apparatus.



EYE PROTECTION

Face shields (illustrated) with special visors . . . goggles . . . welding helmets . . . acid hoods . . . heat masks.



FIRST AID

All-Weather First-Aid Kits and other cabinets . . . Salt Dispensers and Tablets . . . Foile . . . Fend . . . Fire blanket outfits . . . Stretchers.



HEAD PROTECTION

Skullgards . . . McDonald Hats . . . Cool Caps . . . Fireman's Helmets . . . Hat and Goggles or Welding Helmet Combinations.



INSTRUMENTS, GAS—PORTABLE

Explosimeters and Combustible Gas Indicators; Carbon Monoxide, Hydrogen Sulphide, Methane, Nitrogen Dioxide and Mercury Vapor Detectors.



GAS MASKS

All Service . . . Ammonia . . . Hose Masks . . . Self-Rescuers . . . Military Masks . . . Industrial Canisters.



INSTRUMENTS— DUSTS AND FUMES

Midget Impinger . . . Electrostatic Dust Sampler . . . Microprojector . . . Samplair.



ARTIFICIAL RESPIRATION AND OXYGEN THERAPY EQUIPMENT

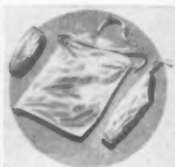
Pneulator . . . Inhalator . . . Oxygen Therapy Units . . . Demand Pneophore.



SAFETY CLOTHING

(Wool—Asbestos—Chrome—Plastic—Rubber)

Aprons . . . Gloves . . . Hand Pads . . . Suits . . . Leggings . . . Clogs . . . Knee Pads . . . Shoes . . . Pads.



RESPIRATORS

Comfo . . . Dustfoc . . . Chemical Cartridge . . . Metal Fume . . . Gasfoc . . . Gas-Fume



SAFETY BELTS

Leather and Web Safety Belts . . . Lanyards . . . Steel Safety Tail Lines.



INSTRUMENTS—GAS PERMANENTLY INSTALLED

Carbon Monoxide and Combustible Gas Alarms . . . Continuous Carbon Monoxide and Oxygen Recorders . . . Infra-Red Photoelectric Analyzers.



The
open door
to a
SAFER
TOMORROW . . .

Your business is to make your workers safe. Our business is to furnish the tools for the job. Over 2000 types of protective equipment, developed through the ever continuing Research Program in the M.S.A. Laboratories, are ready and waiting to help you combat the specified hazards of underground, surface, M.S.A. means a single source of supply, one undivided responsibility, and a standard of quality that has made the successful men of the Safety Equipment Industry.

VENTILATION EQUIPMENT

Air Movers . . . Welding Fume Exhausters . . . Portable Ventilators.



In selecting and buying Safety Equipment, SERVICE is as important as PRODUCT. Call the M.S.A. man on your every safety problem . . . his job is to help you.

MINE
SAFETY
APPLIANCES
COMPANY

SAFETY EQUIPMENT HEADQUARTERS
M.S.A.

NATIONAL SAFETY NEWS

MARCH 1951

Vol. 63, No. 3

CONTENTS

See also index on page 10

Section 1. The Working Environment	11
(a) Plant Design and Layout, Ventilation, Light, Color.	
(b) Housekeeping, Floors, Stairs, Ladders, Scaffolds.	
(c) Personal Service Facilities — Washrooms, Lockers, Food Service, Drinking Water.	
Section 2. Personal Protection—Eyes and Face, Respiratory, Feet, Head, Hands and Arms, Safety Clothing, Belts and Harness	73
Section 3. Handling Material — Trucks and Tractors, Hoists, Cranes, Wire Rope, Chain, Fiber Rope	133
Section 4. Machine Operation and Guarding — Machine Guards, Electric Equipment, Hand and Power Tools	149
Section 5. Plant Protection — Fire-Fighting Organization and Equipment, Extinguishers, Alarms, Sprinklers	165
Section 6. Medical and Health Service — The Medical Department, Treatment of Injuries, Hot Weather Health, Skin Hygiene	181
Section 7. Safety Promotion and Training — Teaching Materials, Safety Signs, Publications	193
Editorial	2
Preparedness	3
A Dusty File (The Diary of a Safety Engineer) — Bill Andrews	5
Mobilizing Woman-Power	6
Salvaged Skills	7
The 1950 Record	8
What to Wear—When to Wear It	9
The Honor Roll	48
Personals	54
The Safety Library	147
Coming Events	196
Safety Posters	240
Directory of Advertisers	243
Classified Section	246
Index of Advertised Products	255

33,500 copies of this issue were printed

NATIONAL SAFETY NEWS is published monthly by National Safety Council. Copyright 1951 by National Safety Council. Printed in U.S.A. Entered as second class matter June 21, 1921, at the Post Office at Chicago, Illinois, under the act of March 3, 1879. Subscription rate: To members, \$5.50 per year, single copies 55 cents; to non-members, \$7.50 per year, single copies, 75 cents. Quantity prices for yearly subscriptions and single issues on request. Member Audit Bureau of Circulation. Indexed in Industrial Arts Index.

Statements and opinions advanced in signed articles are personal expression of the authors, not necessarily those of the National Safety Council.

BILL ANDREWS, *Editorial Director*

NORVAL BURCH, *Associate Editor*

C. H. MILLER, *Advertising Manager*

CARMAN FISH, *Editor*

*ROBERT L. MEYER, *Associate Editor*

RALPH MOSES, *Art Director*

* On Military Service

National Safety Council

425 N. Michigan Ave.

Chicago 11, Ill.

Eastern Office: 800 Chrysler Bldg.

New York 17; Western Office: 111

Sutter St., San Francisco 4



Chairman of the Trustees:

WILLIAM A. IRVIN, Member, Finance Committee and Board of Directors, United States Steel Corp., New York.

Chairman, Board of Directors:

CHARLES R. COX, president, Kennecott Copper Corp., New York.

President:

NED H. DEARBORN, Chicago.

Vice-Presidents:

For Farms

GUY L. NOBLE, managing director, National Committee on Boys and Girls Club Work, Chicago.

For Finance, and Treasurer

O. GRESSENS, vice-president and comptroller, Commonwealth Edison Co., Chicago.

For Homes

DR. D. B. ARMSTRONG, second vice-president, Metropolitan Life Insurance Co., New York.

For Industry

J. E. TRAINER, vice-president and production manager, The Firestone Tire and Rubber Co., Akron, Ohio.

For Local Safety Organizations

KENNETH B. COLMAN, Seattle, Wash.

For Membership

E. W. KEMPTON, assistant vice-president, United States Steel Corp. of Delaware, Pittsburgh, Pa.

For Public Information

BOYD LEWIS, executive editor, NEA-Acme, New York.

For Schools and Colleges

DR. JOHN W. STUDEBAKER, vice-president and chairman of the Editorial Board, Scholastic Magazines, New York.

For Traffic and Transportation

THOMAS H. MACDONALD, commissioner of public roads, Bureau of Public Roads, Department of Commerce, Washington, D. C.

For Women's Activities

MRS. GEORGE W. JAQUA, safety chairman, General Federation of Women's Clubs, Winchester, Ind.

NATIONAL SAFETY NEWS

MARCH 1951

Fifteenth Annual Safety Equipment Issue

OUR HUMAN RESOURCES

AMONG PRESENT and potential shortages that may handicap our defense efforts, none is causing more concern than our supply of manpower. It is felt by both industry and the military forces. It is evident in all levels of employment—from hourly wage to executive brackets.

With a dwindling supply, conservation becomes vital. Conservation of life and property through accident and fire prevention has been the aim of the safety movement and it has served the nation in two world wars. Now it is being mobilized in another world emergency.

The manpower shortage is complicated by two factors. The low birth rates of the depression years have resulted in fewer boys and girls now reaching maturity. The higher marriage and birth rates of the post-war years are now keeping thousands of young mothers from industrial employment.

Keeping workers on the job through prevention of accidents and occupational diseases is the first and obvious task of organized safety work. This involves safeguarding machines and the correction of physical hazards generally. It also includes the use of personal protective equipment where needed. But safety goes beyond these basic activities.

Efficient materials handling equipment will obtain more production from present plant and personnel in addition to removing certain hazards. When new plant construction is out of the question, much can often be done by rearranging equipment.

Reduction of labor turnover is an important conservation measure. In a competitive labor market good working conditions are needed to attract desirable workers and keep them on the payroll. Good air and light are basic essentials. Important also are personal service facilities, such as washrooms, drinking water, and in-plant feeding facilities.

Our Fifteenth Annual Safety Equipment issue is a guide for planning your program and purchases. In addition to the editorial pages and display advertisements, the classified sections will also be helpful.

The National Safety Council is always glad to furnish information on less familiar types of equipment. Manufacturers and dealers are also ready to give information on special problems and to help you get the most out of your present equipment.

DEFENDING THE HOME FRONT

PLANT PROTECTION is an integral part of the civil defense program. Industry has a nucleus of men trained in first aid and rescue work who are

well equipped to serve as organizers and instructors in regional organizations. In many a disaster caused by natural forces and man failure they have shown skill, courage and endurance in aiding stricken communities and restoring order and confidence.

As this is written, public attention has been concentrated on atomic weapons. There can be no doubt about their deadliness but scientists have given us some reassuring statements.

Man, fortunately, has not been able to develop a bomb that will blow the earth apart or kill us all by radioactivity. Also encouraging is the fact that doubling bomb size does not double its destructive capacity. Somewhere, the law of diminishing returns sets in.

Much has been written and published about protection against A-bombs. One of the most comprehensive works on the subject is *Disaster Control*, prepared by *The American Machinist*. Through arrangement with McGraw Hill Company, copies of this pamphlet have been sent to certain classifications of members of the National Safety Council as part of membership service. Other publications have been issued by the Atomic Energy Commission and other governmental and private agencies.

Because of the volume of authoritative material available on atomic warfare, it has seemed advisable in this issue to stress the less spectacular but nonetheless vital measures for guarding the home front. We have plenty of enemies right in our midst. Without getting hysterical about spies and saboteurs, we must tighten our defense against all subversive agents.

And our enemies, it would seem, are getting plenty of unintentional help from fires and accidents due to so-called natural causes. It would take large forces of aircraft or ground troops to cause comparable losses of life and property.

ACKNOWLEDGMENT

EACH issue of NATIONAL SAFETY NEWS is made possible by the voluntary contributions of knowledge and experience of members of the National Safety Council. This material is most helpful in revising the information presented each year in the Safety Equipment issue.

Among sources of material, the Council's *Accident Prevention Manual for Industrial Operations* has been valuable. Trade literature and catalogs issued by manufacturers of various types of equipment are also helpful sources of information. These publications are recommended to the reader to supplement the publications listed in the sectional bibliographies.



Reminiscent of the war zone was this scene at Texas City after the explosion of the S. S. Grandchamp in the harbor. Organization for disaster control is needed in both peace and war.

PREPAREDNESS

Careful planning and training of all personnel in emergency duties will avert many disasters and minimize the effects of others

DISASTER may strike a community at any time—in peace or in war. Fire, explosion, storm, flood and other catastrophes have brought death and destruction to wide areas, unaided by enemy action. With the coming of war, destructive forces would descend on our cities on a greatly increased scale.

In both man-made and natural disasters, plant protection forces have performed splendid service both to industry and to stricken communities. In a nation-wide emergency they would assume a vital part in the civil defense program.

To every industrial establishment fire is a constant threat, even in normal times. In some industries the elements of disaster are inherent in operations and processes and these hazards are held in control by a well-trained and disciplined organization. Such industries have large forces of men trained in fire-fighting, first aid and rescue work, and the necessary equipment for such operations.

1. WARTIME HAZARDS

Aside from land invasion, destruction of life and property and vital war production may result from:

1. Direct enemy attack by air.
2. Indirect enemy attack by sabotage or civil commotion.
3. Results of inherent hazards, such as fire, accident and the elements. Increasing these risks are the abnormal and often substandard conditions of wartime operation.

Much has been written about atomic weapons and this information has been widely circulated. In planning against the effects of radioactivity, the less spectacular and more imminent dangers must not be overlooked. Blast and fire cause the greatest destruction, whether the weapons are A-bombs or the conventional type.

2. ORGANIZATION

The first step is the appointment of one person to take full charge of protective activities. Plant Defense Coordinator (PDC) is the recommended title for the job.

Shop stewards or other representatives of labor should have a part in the planning. Some of the precautions are likely to be irksome and labor's support is absolutely necessary.

One of the first steps is to establish liaison with the local civil defense organization. The problem is not one for the plant alone; it is regional. Even though a community may not be attacked, it may be necessary to house refugees in warehouses. Plant medical services and feeding facilities may be needed.

There must be an active head at all times to direct operations. It is therefore necessary to set up a headquarters room.

Frequent practice alerts, held at irregular intervals and without warning, are needed to keep the organization on its toes.

Details of training methods of protection against bombs will be found in the numerous publications now available.

3. PSYCHOLOGICAL DEFENSE

Panic is a far greater threat to the defense effort than any other weapon. This element is not limited to war. It



When the area around East Alton, Illinois, was ravaged by a tornado, the plant protection force of Western Cartridge Company aided the stricken communities. Equipment included portable generator and flood lights to aid first aid and rescue work.

occurs quite frequently with victims of fire, flood, earthquake and industrial explosions. It has caused many casualties when there was no immediate danger.

Psychological defense may be achieved in three major steps—preparation, information and action. Morale is important, but psychological defense goes far beyond that.

"Conditioning" is the term used to describe the training that exposes people to the warnings of danger. It acquaints them with the danger signs and trains their reflexes and reactions. This is the reason for military maneuvers under fire, also for civilian air raid and fire drills. The object is to train the individual until the right action becomes automatic even in the face of danger.

Psychological defense is also concerned with mental health. Some of the symptoms to be looked for are absenteeism, alcoholism, anxiety, increased accident rates, rumor-mongering, "goldbricking," theft, tool damage, etc. These are danger signs. They may or may not indicate deliberate sabotage, but they should be watched.

4. SABOTAGE AND ESPIONAGE

A great deal of damage can be done to American industry without the aid of a single plane or bomb. The saboteur is one of the enemy's most valuable aids. He is often one of the least suspected members of the organization. He may not be of alien birth, or even foreign parentage. He may be a laborer, a skilled technician, or even a member of management.

He may work because of devotion to his native country, for pay, for revenge, fanatical devotion to a cause, or under threat of blackmail or fear of reprisal against relatives in the enemy country. The latter is a favorite weapon of totalitarian governments.

Physical sabotage is usually an inside job, or it requires the assistance of willing or deluded accomplices in the plant. One of the worst things about sabotage is the atmosphere of suspicion it creates.

Keeping undesirable persons out is the first step. When possible the plant should be surrounded with a man-proof fence. Keeping the grounds well lighted makes them easier to patrol and discourages intruders.

Parking lots should be located outside the main fence and no vehicles allowed to park within 25 feet of any important building. The parking lot should be patrolled by the plant guards. Where cars must be driven through the gates, each individual must be identified separately.

Restricted areas inside the plant, and those particularly vulnerable to sabotage, must be closed to all except properly assigned persons.

Valuable precision instruments and tools must be kept in a locked tool crib and issued only on a charge-out ticket. Damage to such tools should be reported immediately and investigated carefully.

Dangerous chemicals should be stored and guarded carefully, also scarce or valuable materials and explosives. Food supplies should be purchased from reliable dealers and any case of food poisoning within the plant should be investigated. Water

supplies should be protected against pollution, or interruption in case of fire.

Guards must be of good physique and character. Before hiring they should be investigated thoroughly and their associates checked as far as possible. They should be deputized, uniformed and armed.

Enough guards should be employed to cover the entire plant on a twenty-four hour basis.

5. EMPLOYEE IDENTIFICATION

Positive identification, preferably a tamper-proof badge to be worn at all times within the plant should be issued to every employee. This should show, either by shape or color scheme, the shift on which he works and the departments he is allowed to enter.

It is advisable not to show the company name on the badge, so that in case of loss a finder would not know the plant issuing it. Each employee should also have an identification card containing his photo, fingerprints and a description of his appearance.

In large plants it may not be possible to investigate every employee as to loyalty, character and background, but this should be done with those who are in a position to commit serious sabotage. Any investigation must be carried out with discretion and any action taken should be based on fact. Rumor and anonymous charges are not sufficient grounds for discharging an employee.

6. VISITOR CONTROL

Visitors should be required to enter through the main gate and subjected to scrutiny by the plant guards. When admitted they should be given a distinctive badge to be worn in plain sight while in the plant and surrendered when leaving.

7. PASSIVE SABOTAGE

This is the most difficult kind to detect. It may consist of working slowly enough to slow down production without being too noticeable. Excessive scrap, accidental damage to machines, falsifying stock or production records, passing defective parts or rejecting sound ones, have all been employed to slow down the defense effort.

Detection of such work calls for a great deal of skill. In case of justified suspicion the FBI should be called in.



A Dusty File

(Fiction)

By BILL ANDREWS

March 1, 1951.

Sometimes an old, forgotten file folder provides a guy with a kind of perspective on his work.

In the course of a week or a month or a year, you bat your head against issues. You win some battles. You lose some. And others you neither clearly win nor clearly lose. In the confusion of the specific issues you lose all sense of over-all progress or retrogression.

The file which provides this burst of philosophy is a collection I started in 1939, when I was still at Monarch, and it bears the uninspiring title of "Polley—Purchasing."

First exhibit in the file is the carbon of an inter-office memo addressed to the purchasing department of Monarch, signed by the general manager. It reads, "Paragraph 3-C in section PP of Procedural Manual is amended to include safety engineer mandatorially on items of class VI and XII, discretionally on items of class XXIV, XXV, XXIX."

In Monarch's own internal gobbledygook, the GM had announced that the purchasing department would in the future consult the safety department on all purchases of signs and wire rope, and either the purchasing department or the departmental executive requisitioning the material could call for the safety department's opinions on chemicals, chemical containers and flooring material.

Prior to that memo, our total purchasing responsibility was limited to

first-aid fire extinguishers, machine guards, and personal protective equipment. To get even this modest expansion of our responsibility had taken a long campaign on the part of my old boss, Monarch's top safety man, and—finally—a fatal accident.

The wire rope that killed a man had been new and good enough—but it had been used for a purpose that demanded far more than the rope's rated strength. And the dingy warning sign probably had nothing to do with the accident, but the GM saw it, realized it was unreadable, while he stood just on the edge of a widening pool of blood on the plant floor.

The announcement that we could be consulted on the other items came only because my boss's last memo to the GM had asked for authority on wire rope and the other items, and when tragedy established the need for one, the others came in on its momentum.

Next item in the file was a 1942 manual on purchasing clearances from the ordnance works, with amendments in 1943 and early 1945, each expanding the area of my responsibility for the review of requisitions.

The last item I added to that file, before I forgot it, was a memo from Claude Jackson while he was still president of Jackson-Barnes, dated, February 2, 1948, instructing department heads to keep me posted on all changes on process and materials—that being the result of a job which

involved machining magnesium which almost got into production without special precautions.

Strictly, that memo has nothing to do with purchasing or the review of requisitions. But it is the basis of all the authority I've acquired here at Jackson-Barnes in the purchasing field.

I flipped the file over to Jim Mason, my top assistant. He looked at the first items with something like the amazement a kid shows when you tell him there weren't any radio broadcasts when you were little.

"Good Lord, boss," Jim said, "Do you mean to tell me that in those days the company's top safety man wasn't consulted on sprinklers, or ladders, or dust collectors, or spray booths?"

I laughed at him. "In those days—and don't make it sound like three weeks before the Flood—a safety man at Monarch was supposed to be flattered if anybody asked him to recommend a pair of goggles. No—I'm making it sound worse than it was. We were, of course, consulted pretty often, but almost always on a personal, informal, irregular basis."

Jim looked indignant. "But how in blazes could you do anything if you couldn't veto a bad product or recommend a good one? Look, in the last month, alone, what have we checked on? A ventilating set-up for the machine shop—and not just dust hoods on the machines, either. We must have spent six hours between us arguing for one kind of fork-lift truck as against another type. We've checked specifications on Lord knows how much mileage of conveyors. And you raised hell when you found that the lighting installation in the paint shop hadn't been cleared with you."

It was certainly true. As safety director of Jackson-Barnes I've got a voice, and an authoritative voice, in purchasing materials that my old boss at Monarch wouldn't have dared to ask for a say on. He wouldn't have dared, and yet he was a fighting safety man, ready and willing to fight any battle that offered a chance of success.

But he battled on more obvious issues and won some of the battles. Guys like him and guys like me have pushed and shoved, a foot here, an inch there, and sometimes, in a confused situation such as we found in the war plants, we shoved a good country mile ahead because there was no entrenched bureaucracy on the spot to buck us.

And still we inch ahead, and sometimes we get our ears pinned back, and sometimes a bad break or a good one dramatizes the good sense of what we're asking for.

I had to tell Jim, in all honesty, that at Jackson-Barnes we have more recognized responsibility and authori-

—To page 142

Mobilizing Woman-Power

With well-planned plant and equipment, women can do 80 per cent of the work usually done by men

WE didn't want women, but now they're here we've found they are just as fast and just as capable as the men. They are all right."

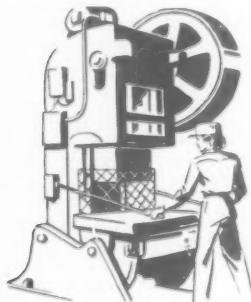
That quotation by the U. S. Department of Labor represents the reaction of industrial management during World War II, when production demands caused the large reserves of woman power to be tapped for factory jobs as never before.

When the women came to work, of course, the male contingent suffered a jolt. Supervisors puzzled over "strange" problems. Men workers were suspicious. One company tried to ease their pain with a mimeographed bulletin like this:

"Half the people in the world are women—your mother, wife, sister, daughter. The women who are coming into the plant are just like them." As things turned out, new production records were set—and the men weren't hurt a bit.

Although industry as a whole is considered a man's world and woman has been relegated to the home, her highly developed home skills actually brought woman into the factory at the very beginning of the industrial age, when the inventions of Watts, Hargreaves, Arkwright and Crompton combined to create the power textile industry.

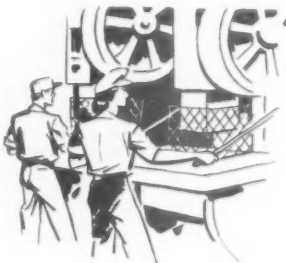
She has been an important part of the labor force in that and similar factory operations ever since. But in the broad advance of industry generally, woman was left out—except in times of emergency. According to the International Labor Organization, "woman power is still generally regarded as a reserve of labor which can be tapped or neglected at will," . . . although "they have been entrusted with the most varied types of work and functions, at nearly every level of skill and responsibility."



However, the trend has been changing gradually for three decades. With woman's growing insistence on more freedom in choice of jobs, with an increasing tolerance in personnel matters as the weaker sex has proved its capabilities, and with the help of two major crises that have called out every possible pair of able hands, women have gained a toehold they're not likely to relinquish. From the wartime peak employment of 20,400,000 women in July 1944, the total had declined only to 18,800,000 in November 1949.

Strength and stature are the most conspicuous areas of difference between men and women, according to anthropologists, who estimate the physical strength of a woman at one-half that of man, although this varies with racial and individual characteristics.

Despite this disadvantage, technological advances have made woman nearly the equal—in some cases the



superior—of man. Jobs that formerly were reserved "for men only" now are being filled safely and efficiently by women, through the help of training, supervision and equipment.

Among the conclusions of the late Dr. C. O. Sappington, writing in a survey for the Industrial Hygiene Foundation in 1944, were these:

1. There is a decided trend toward the employment of women in greater numbers in all types of industries.

2. It is now stated that women can do about 80 per cent of the jobs ordinarily done by men.

3. Except in instances where women have been used for a period of 20 to 25 years continuously in industrial establishments, it is not possible even to approach a standardization of policy with respect to personnel, med-

ical and safety. These supervision programs take time, effort and consideration, but pay excellent dividends, according to those who have them.

4. The increased employment of women quite likely will bring about favorable changes and progress in



methods of protection against potentially hazardous exposures ordinarily resulting in sickness and accidents of industrial type; the mechanization of processes; and more adequate provision for and maintenance of plant sanitation and housekeeping.

5. The specific physiological problems of women, menstruation, pregnancy and menopause, do not appear to be a cause for much concern, except as represented by the phase of social adjustment, although there are naturally individual cases which need specific advice and treatment.

These observations written in the latter part of World War II, ended with the prediction: "Women will continue to be used in greater numbers in industry during the rest of the war, and after the war will be found in greater numbers in industry generally than during the previous peacetime. This is true of all industry, including the heavy industry groups." Postwar experience appears to have borne out this prediction.

The Women's Bureau of the U. S. Department of Labor offers ten pointers for the successful utilization of women workers in industry:

- (1) Sell the idea of women workers to present staff, foremen and men workers;
- (2) Survey jobs to decide which are most suitable for women;
- (3) Make adaptations of jobs to fit

—To page 200

Salvaged Skills

The physically handicapped form one of our few reserves of labor. They need employment and the nation needs their services



Official U. S. Navy Photo

ONE of the luxuries of business-as-usual is a high physical standard for employment. It is a luxury which is one of the first casualties of any emergency creating a short labor supply.

Fortunately, most companies are in a position to lower their general standards without serious harm—providing that they substitute for an over-all high standard, an intelligently selective program which places the handicapped worker where he can work safely and productively.

The truth of this statement is borne out by the fact that many companies, even in days of plentiful labor supply, have willingly—sometimes enthusiastically—accepted workers with serious physical defects.

This is not, most emphatically, any justification for a collapse of intelligent use of physical data in placing the worker. There are, to take an extreme example, thousands of jobs which demand 20-20 vision. But there are literally thousands of industrial positions for which the totally blind have proved their suitability. We need more, not less, eye-testing in industry, but we also need to review our standards to adjust those which are higher than needed for a particular job.

There are very few people so seriously handicapped physically or mentally as to be permanently unemployable. But there are probably fewer people who are physically up to reasonable standards for every job. The handicapped employables are not a small group—they are the great majority of all Americans.

The more dramatically handicapped—the blind, deaf, and crippled, the amputees and the people with bad hearts, the neurotic and the sufferers from chronic illnesses and sensitivities—have been studied many times. The body of statistical evidence seems to show that such people, when properly placed, are productive workers, safe workers, desirable members of a plant force.

Proper placement for these people

demands, first of all, a thorough knowledge of the work operations and the working conditions of each occupation in the plant. This knowledge should be evaluated by qualified specialists—production men, personnel men, safety men, and medical personnel. The physical requirements for each occupation should be established individually, and they should be as strict as needed—but not a bit more strict.

This information should be assembled into easy reference form for the use of the personnel office in the employment interview and in the final placement following medical examination.

It is important that supervisors be made aware of the importance of any limitations placed on the types of work an individual may do safely. The formal transfer of a worker from one job to another is only the most obvious situation in which this point should be considered. There is, on the shop floor, a constant temptation to shift men and work operations quickly to meet temporary or changing situations. No amount of personnel-office record-keeping will prevent misassignment and resulting serious hazard in such situations, unless supervisors are made strongly conscious of the need of observing all

restrictions on the work operations of handicapped employees—and unless they have at hand, in the department, the information on these restrictions for each employee.

As a corollary of this point, a systematic method of conveying the information from department to department in cases of transfers must be established.

One objection to the employment of handicapped workers is that a disability may be aggravated, or spurious claims of aggravation may be made, involving the company in increased compensation costs.

There are, undoubtedly, many types of handicaps which, for any particular type of operation, may be aggravated. Workers so handicapped should not be employed in those operations.

The best defense against spurious claims—and incidentally the studies of the subject do not bear out the fear that compensation claims are usually increased—is a sound physical examination system, which definitely documents the physical status of the worker at employment and at intervals during his employment.

A number of agencies are ready to serve the employer who is considering employing conspicuously handicapped people. There are state and federal rehabilitation agencies who have both information on the capabilities of the handicapped generally, and also contact with handicapped individuals who have profited from rehabilitation training.

The results of this training are often spectacular. One member of the National Safety News staff recently had the experience of being taught to operate a metal-working lathe while blindfolded—his teacher being a man who has never seen the machine which he knows so well—a blind man who was taught and became himself a teacher after losing his sight.

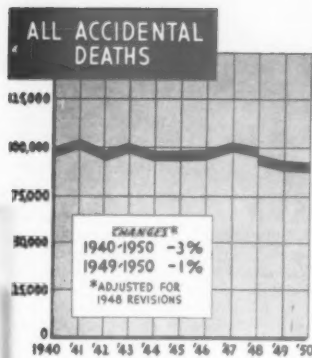
It is probably not necessary to

—To page 192



The 1950 Record

Total fatalities down 1 per cent in spite of increases
in motor vehicle and occupational classifications



THE 1950 occupational accident death total was approximately 15,500, an increase of 500 from the 1949 total of 15,000.

The largest increase occurred in the manufacturing industry, in which there were 300 more deaths in 1950 than in 1949. The construction industry had an increase of about 200 deaths, and the service industry an increase of about 100. Public utilities was the only industry to show a decrease in deaths in 1950, while in the trade, transportation, agriculture, and mining and quarry industries the death totals were about unchanged.

Nonfatal injuries increased, too, in 1950, to an estimated total of 1,950,000 compared with 1,850,000 in 1949, a 5 per cent rise. Permanent impairments numbered about 85,000, or 5,000 more than in 1949.

Employment in all industries during 1950 increased about 2 per cent above the 1949 figure. In manufacturing alone, employment increased about 5 per cent.

Accident rates cannot be computed at this time on a national basis, but preliminary information indicates that the all-industry frequency rate probably rose slightly. Nonfatal injuries, as noted above, increased about 5 per cent. The number of workers increased 2 per cent, and average hours worked went up a little but probably no more than 1 per cent. The change in exposure, then, apparently was less than the change in injuries.

Accident Costs

Wage loss, medical expense, and the overhead cost of insurance for occupational accidents in 1950 amounted to about \$1,400,000,000. The so-called "indirect" costs totalled approximately \$1,300,000,000, including such items as time lost by workers other than the injured, interference with production schedules, property damage, and partial disability due to accidents which did not result in lost time. Total costs thus were about \$2,700,000,000.

Off-the-Job Accidents

In addition to the occupational accidents, the nation's productive capacity was lowered by off-the-job accidents of workers. The 1950 death toll from these accidents was approximately 34,000 and the injury total about 2,600,000. Accidents to workers, on and off the job, thus totalled 49,500 deaths and 4,550,000 injuries. The time lost during the year from these accidents, and from less serious injuries and indirect losses, amounted to approximately 410,000,000 man-days.

Industrial Commission Records

Deaths reported to Industrial Commissions in 25 states during 1950

totalled 7,652, or about 5 per cent more than were reported in 1949. Increases of 1 to 28 per cent were recorded in 18 states, and decreases of 1 to 27 per cent in 7 states.

	1950	1949	Per Cent Change
Totals for 25 States	7,652	7,302	+ 5
Alabama	95	96	- 1
Arizona	71	64	+11
California	832	865	- 4
Connecticut	46	51	-10
Florida	147	160	- 8
Georgia	127	112	+13
Idaho	60	82	-27
Illinois	427	333	+28
Kansas	99	82	+21
Kentucky	67	76	-12
Maryland	135	122	+11
Massachusetts	462	454	+ 2
Missouri	77	76	+ 1
Nebraska	69	66	+ 5
New York (8 months)	1,020	981	+ 4
North Carolina	137	126	+ 9
Ohio	1,123	1,031	+ 9
Oregon	153	130	+18
Pennsylvania	910	891	+ 2
South Carolina	68	83	-18
Texas	574	569	+ 1
Virginia	208	177	+18
Washington	241	205	+18
West Virginia	335	311	+ 8
Wisconsin	169	159	+ 6

Railroad Accidents

Deaths of railroad employees on duty, excluding those occurring more than 24 hours after the injury, numbered 209 in the first eight months of 1950, a decrease of 22 per cent from 1949. Injuries with more than three days' disability numbered 13,321, or 14 per cent less than in 1949.

Coal Mine Accidents

Deaths in coal mine accidents in 1950 totalled 637, or 7 per cent more than in 1949, according to a preliminary report of the U. S. Bureau of Mines. However, the death rate per million tons of coal mined decreased 6 per cent, from 1.23 in 1949 to 1.16 in 1950. The 1950 rate is the lowest on record. Falls of roof or face accounted for 58 per cent of the 1950 deaths, and haulage accidents for 17 per cent.

Fire Loss

The 1950 total of property destroyed by fire was about \$688,000,000, according to the National Board of Fire Underwriters. This was 3 per cent more than the comparable 1949 total. In 1949, over half of the loss from building fires was in industrial and business establishments.

THE NATIONAL ACCIDENT FATALITY TOLL

	1950	1949	Per Cent Change
All Accidents	90,000	91,000	- 1
Motor-vehicle	35,000	31,500	+11
Public non-motor-vehicle	14,000	15,500	-10
Home	27,500	31,000	-11
Occupational	15,500	15,000	+ 3

*Note: The motor-vehicle totals include some deaths also included in the occupational and home totals. This duplication amounted to about 2,000 deaths in each year. All figures are National Safety Council estimates.

What to Wear—When to Wear It

Sparks
 Hot Materials
 Heat
 Hot Liquids
 Moisture
 Acids & Alkalis
 Slips & Falls
 Falling Objects
 Flying Particles
 Electric Shock
 Cuts & Abrasions
 Dermatitis
 Explosives
 Machinery

1	2	3	4	5	6	7	8	9	10	11	12	13	14
X	X	X											
X			X	X	X				X		X		
X								X	X	X			

Asbestos
 Plastic-Rubber
 Cotton-Wool
 Metal
 Plastic

1	2	3	4	5	6	7	8	9	10	11	12	13	14
X	X	X											
X	X		X					X	X				
			X	X	X			X		X	X	X	
			X	X	X			X		X	X	X	

Asbestos
 Chrome Leather
 Plastic
 Rubber
 Canvas-Fiber

1	2	3	4	5	6	7	8	9	10	11	12	13	14
X	X	X											
X	X		X					X	X				
X	X							X					X
			X	X	X						X		

Asbestos
 Chrome Leather
 Flameproofed Duck
 Plastic
 Rubber

1	2	3	4	5	6	7	8	9	10	11	12	13	14
X	X	X											
X	X		X					X	X				
			X	X	X			X		X			
			X	X	X					X			

Asbestos
 Chrome Leather
 Rubber
 Plastic-Rubber Coated Fabric
 Metal Mesh
 Cotton-Canvas

1	2	3	4	5	6	7	8	9	10	11	12	13	14
X	X	X											
X	X		X					X	X				
X	X							X					X
X							X	X	X				X

Asbestos
 Chrome Leather
 Flameproofed Duck
 Fiber-Metal
 Plastic
 Rubber

1	2	3	4	5	6	7	8	9	10	11	12	13	14
							X		X			X	
				X		X							
	X	X	X	X	X	X			X				
X	X	X	X										

Steel Toe Caps
 Non-Skid Shoes
 Wooden Soles
 Chrome Leather
 Rubber
 Conductive Rubber

HATS, CAPS
HELMETS

COATS, APRONS
WAIST PROTECTION

SLEEVES
WRISTLETS

GLOVES, MITTENS
HAND PADS
FINGER GUARDS

PANTS, KNEE PADS
LEGGINGS

SHOES, BOOTS

INDEX

Volume 63, Number 3

(Titles of sections in bold face)

A		Fire doors	177	Plant construction and maintenance	11
Absorbents, oil and grease	32	Fire protection organization	155	Plant Protection	165
Acid Handling	148	Fires, metal	180		
Air Conditioning	13	First aid for injuries	182		
Air filters	14	Flameproofed fabrics	180		
Aisle markers	19	Floor machines	19	R	
Alarm systems, fire	167	Floor plates	38	Railings and toeboards	24
Antiseptics, first-aid	182	Floor surfacing, fabric	36	Ramps	58
Applications, protective	111, 187	Food service	55	Rehabilitation	7
Aprons	94	Foot guards	89	Respirators, air-line	130
		Foot protection	76	Respirators, filter	75
				Resuscitation apparatus	183
B				Rodent control	72
Belts, safety	117	G		Roof anchorage	64
Body protection	9, 94	Gloves	9, 108	Rope, fiber	146
Breathing apparatus, self-contained	132	Goggles	73	Rope, wire	136
Bridges, crossover	136	Guards, machine	149		
Bridges, sidewalk	24			S	
Brooms	19			Safety Promotion and Training	193
Brushes	19	H		Safety services	193
Bulletin boards	193	Hand creams	111	Salt tablets	56, 190
		Hand leathers	108	Sanitary equipment and supplies	49
		Handling Materials	133	Scaffolding	24
C		Harness, safety	117	Shields, plastic face	74, 114
Cafeterias	55	Head protection	112	Shields, welding	74
Canteens	55	Hearing aids	116	Shoes, safety	76
Cans, safety	180	Helmets, abrasive blasting	130	Shower baths	49
Cans, waste	19	Helmets, welding	74	Showers, emergency	68
Car movers	162	Hoods, acid	114	Signs, safety	194
Chain	136	Hot weather health	190	Skin cleansers	68
Cleaners, vacuum	19	Housekeeping	19	Skin infections	187
Cleaners, skin	68			Smoking areas	19
Clothing, protective	9, 94	I		Snake-bite kits	183
Clothing, welders'	94	Inhalators	182	Soap	68
Color	16	Insect control	72	Soles, slip-resistant	76
Compounds, sweeping	34			Spats	104
Conveyors	134	L		Spontaneous ignition	179
Cranes, portable	141	Ladder shoes	29	Sprinkler systems, automatic	167
Creams, protective	111, 187	Ladders, light-metal	23	Stairs	58
Cups, paper	56	Ladders, portable	23	Static electricity	172
Cuspidors	71	Lamps, fluorescent	15	Steam-cleaning units	19
Cutting oils and compounds	187	Lamps, glow	44	Stretchers	183
Cyclones	14	Lamps, incandescent	15	Sweatbands	114
		Lamps, infra-red	44		
D		Leg protection	104	T	
Decals	194	Leggings	104	Timber storage	145
Deodorants	19	Lighting, emergency	44	Toilets	70
Detergents	19	Lighting fixtures	15	Tools, hand	151
Disinfectants	19	Linemen's equipment	148	Tools, non-sparking	164
Dishwashing	55	Lockers	71	Tools, portable electric	164
Dispensaries, medical	182	Lubrication	144	Towels	70
Dock plates	38	Lunchrooms	55	Tractors	133
Driers, electric, hand	70			Trucks, industrial	133
Dust collectors	14	M			
Dust control	13	Machine Operation and Guarding	149	V	
		Masks, gas	75	Vacuum cleaners	19
E		Masks, hose	75	Ventilation	13
Ear stoppers	26, 116	Materials handling	133	Visual surveys	73
Educational materials	193	Mats, floor	38	Visual training aids	193
Electric equipment	150	Medical and Health Service	181		
Examinations, physical	181	Mittens	108	W	
Exhaust systems	13			Washroom equipment	49
Extinguishing systems, automatic	167	N		Watchman supervisory systems	167
Extinguishers, first-aid	166	Noise control	26	Wax, floor	20
Eye conservation	73	Non-fogging compounds	114	Windstorm damage	64
Eyesight testing equipment	73, 181			Window cleaning	117
		P		Wire rope	135
F		Paint	16	Wood preservatives	30, 31
Face shields, plastic	114	Paint, luminous	31	Work furniture	56
Fans and blowers	13	Pallets	133		
Filters, air	14	Personal Protection	73	X	
		Personal service facilities	49	X-ray apparatus and service	191

The Working Environment

Plant Design and Layout

THE MODERN industrial plant reflects not only progress in operating efficiency but also increased interest in human relations—both public and employee—on the part of industry.

The value of good working conditions has long been recognized. They are tied in closely with cleanliness, ventilation, good lighting, noise control, elimination of disagreeable odors, freedom from physical hazards, and other factors. These affect the pride of the employee in his job as well as his safety and health. The standards maintained in the plant are reflected in the community.

During the war much new construction was necessary to meet military needs. The demand for new buildings continued after the war because of shifting population and markets, high transportation costs and obsolescence of old plants. Many of the older buildings were not adapted to modern methods and equipment needed to produce efficiently and economically in the face of rising labor costs. Now, the threat of war is again demanding an increase of plant capacity.

When a plant is in the blueprint stage, features which increase efficiency and safety can be included at comparatively little expense. Effective planning means fewer costly changes in the finished structure.

To a lesser extent, opportunities for improvement are offered in remodeling. It has been estimated that 75 per cent of the industrial plants in the United States are more than 25 years old, and these plants must supply a major part of our civilian

and military goods. Some engineers argue that "no plant is hopeless."

Building Trends

High construction costs are stimulating the search for economical materials and methods. Newer building materials, which meet severe performance tests, are sometimes barred by local building codes. Work on standardization of building codes is being conducted by the American Standards Association and other organizations.

One story plants are the choice of many companies in locations where land values are not excessive and there is plenty of room for expansion. Advantages of one story construction are:

1. Lower construction cost.
2. Freedom from stairs and elevators.
3. Ease in routing and handling heavy and bulky equipment.
4. Better lighting and ventilation.
5. Ease in isolating hazards.
6. More efficient handling of materials.

7. Ease of supervision.
8. Lower operating and maintenance costs.
9. Better possibilities for landscaping—an asset where the plant is in a conspicuous position near a main highway or an airport.

Roofs. Keeping the roof flat, or with few projections, is an economy measure. Monitor and sawtooth constructions are becoming less popular although they are effective in admitting natural light to the center of the building. With modern light sources, which are closer to the quality of daylight, this factor has become less important.

"Controlled Conditions." The windowless plant, independent of the outdoors for light and ventilation, and the conventional type of building both offer certain advantages. From the standpoint of safety and employee health, satisfactory conditions are possible with either type.

Visualizing the finished plant. In planning the layout, each operation can be visualized and provided for. The simplest method is by maps and drawings. More effective are block templates and 2-dimensional templates.



Aerial preview of Lincoln Electric Company's new plant at Euclid, Ohio. Picture shows scale model in actual plant setting. Every one will enter through a ground level entry building and pass under railroad siding and truck docks to the service floor where office lobby and plant entrance are located (The Austin Company)

IN THIS SECTION

Plant Design and Layout	11
Industrial Ventilation	13
Light for Seeing	15
Color at Work	16
Floors and Flooring	22
Portable Ladders	23
Scaffolds and Staging	24
Washrooms and Lockers	40
Food Service	55
Drinking Water	56



Underfloor tunnels in large plants keep employees off the production floor while traveling to and from their job locations. Stairs lead to various departments and provide easy access to toilets, lockers and lunchrooms in basement area. (The Austin Company)

Most realistic and expensive is a layout with precision scale models, $\frac{1}{4}$ " to the foot. With these it is possible to obtain a 3-dimensional picture of the plant. Various arrangements can be made and it is possible to study a manufacturing process quickly and easily. Operations may be combined or simplified and the sequence changed.

Standards for templates and models are being developed by a committee of the American Society of Mechanical Engineers.

General Factors

Before building or remodeling, state and municipal laws and regulations should be checked. These usually cover fire protection, exits, sewage disposal, highway traffic, etc.

Public utility engineers can often give helpful advice to prospective industries in a community.

Type of industry is the major factor in planning the plant's requirements. Even plants in the same industry may have individual problems that involve special planning. Fire and explosion hazards, use of toxic materials, unusual problems of materials handling and storage, are among these factors.

The site. Most people feel that the working day begins when they leave home and doesn't end until they are back home. Tardiness and absenteeism increase when getting to and from work is too difficult.

Cost of operation is affected by the proximity of labor as well as raw materials and markets, particularly in a tight labor situation.

The trend toward decentralization and outlying locations has brought transportation problems, particularly where transit services are inadequate. Employee car pools have become more numerous and some companies have established their own bus service, either free or at a nominal cost.

Topography. Whether the ground is high or low, level or sloping, dry or swampy or undermined must all be considered in the plans. Normal drainage and the possibility of floods or washouts during heavy rains must also be considered.

On ground likely to be flooded, one-story buildings have disadvantages. Even though the structure is strong enough to withstand the flood, there are no upper floors to which valuable equipment and products can be moved.

Waste disposal. Waste and sanitary sewer location is determined chiefly by location of buildings, lay of the land, and maintenance needs. Sufficient manholes or other openings for maintenance should be planned.

REFERENCES

Plant Design and Construction

Checking Plans and Specifications for Safety—Safe Practices Pamphlet 53, National Safety Council.

Blueprint for Safety, by Lawrence Stout—National Safety News, Sept. 1948, p. 18.

Building Construction, Safety Code A10.2-1944—American Standards Assn.

Engineering Plants for People, by J. K. Gannett—National Safety News, July 1950, p. 20.

Floors and Flooring—Safe Practices Pamphlet 11, NSC.

Building Exits Code, Z9.1-1949—National Fire Protection Assn.

Floor and Wall Openings, Railings and Toeboards, Safety Code for A12-1933—American Standards Assn.

Our Aging Plants, by Leo J. Pantas—National Safety News, Jan. 1951, p. 18.

Safety at the Floor Level—National Safety News, June 1950, p. 30.

The Industrial Environment and Its Control, by J. M. Dalla Valle, (Book)—Pitman Publishing Corp., New York.

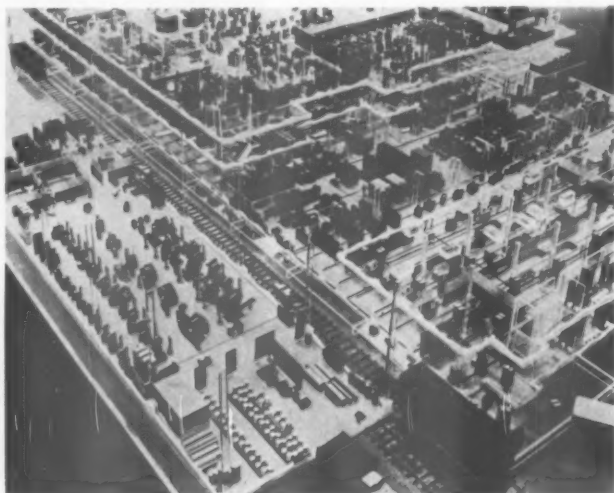
Sewers should not be located where leakage might contaminate drinking water sources. In some instances it may be necessary to treat waste material before running it into streams or otherwise disposing of it. In other instances it may be necessary to install special sewerage systems. Federal as well as state and municipal laws may govern waste disposal.

Climate. Industries in colder regions have problems of ice and snow and keeping the plants warm, which may make ventilation complicated and expensive.

In some parts of the country some material may be stored outdoors; in others, covered storage may be necessary.

Roof loads of ice and snow and strong winds also affect building design. Where storms of cyclonic intensity are frequent, roof anchorage

—To page 58



A complete factory with all types of machines and railroad sidings can be assembled in miniature with realistic scale models. ("Visual" Planning Equipment Co., Inc.)

Industrial Ventilation



Dust and smoke collector hoods behind these two foundry shakeouts have a capacity of 18,000 cubic feet of air per minute. (Allis-Chalmers Manufacturing Company)

VENTILATION of workrooms has two aspects of importance in industrial hygiene:

1. General air requirements necessary for the well-being and comfort of occupants.
2. Removal of air contaminants at their source.

General ventilation has been defined as the process of supplying or removing air to or from any space. This may be accomplished by natural or artificial means.

Air conditioning means control of the physical and chemical properties of the air. It includes temperature, humidity and air motion. It involves heating the workroom air in winter and cooling it in summer. In the public mind it is associated with the type of summer comfort air conditioning provided in theaters, restaurants, stores and some offices and factories.

Air conditioning is also important where the product requires uniform temperature and humidity at all seasons. The needs of the product do not necessarily conform to optimum conditions for human comfort.

In the "controlled condition" plant, air conditioning makes the plant independent of the climate outside. The building may be windowless or windows may be used for psychological reasons rather than for ventilation.

General Ventilation

Where there are no processes injurious to health, general ventilation is usually satisfactory. It is also satisfactory where dilution of the air contaminant will keep the concentration below the permissible limit for continuous exposure.

Ventilation is often made more expensive and complicated by the nec-

essary of maintaining temperature at a comfortable level in the room. Exhausting the impure air is usually practicable but in cold weather it may be difficult to warm large volumes of incoming air.

Natural ventilation is adequate for some types of buildings housing non-hazardous operations. Air circulation is aided by doors, windows, roof ventilators and monitors. The number of outlets should be planned for hot weather when the temperature difference inducing the draft is at the lowest point.

Air intakes should be located so that incoming air is properly tempered and does not cause uncomfortable drafts in cold weather.

Artificial general ventilation requires properly located inlets and outlets. Air coming into the room must be uncontaminated and discharge points should be located to avoid recirculation.

When the contaminant is heavier than air, openings at floor level should be provided to permit its escape.

Fans and blowers. Both portable and stationary types are useful for increasing circulation of air which affords relief from heat. They are not substitutes for exhaust ventilation where toxic materials are handled.

Devices for air circulation decrease in effectiveness as temperature and humidity rise.

Air Sanitation

Where there is a definite source of air contamination, general ventilation alone is seldom effective. Control measures involve three steps:

1. Identifying the objectionable substance and locating its source.

2. Atmospheric sampling to determine nature and extent of contamination.
3. Engineering control measures.

Control measures. Control at the source may involve one or more of these measures:

1. Isolation or enclosure of the hazardous operation.
2. Local exhaust ventilation.
3. Operational changes involving substitution of process or materials.

Isolation confines the operation to a definite location. Exposure of workers is either eliminated or restricted to a few selected, trained and equipped operators.

Examples of combining exhaust ventilation with isolation and enclosure are: sandblasting rooms, shake-out and tumbling-barrel operations in foundries, dry mixing, and mixing of volatile liquids.

Processes creating excessive heat, humidity or noise should also be isolated wherever possible.

Personal protective equipment is needed where exposure is occasional or where complete protection is not practicable. Removal of the hazard at its source should remain the objective.

Sanitation and housekeeping must receive constant attention. Otherwise equipment will lose its effectiveness and unhygienic conditions develop.

Supervision and training of employees, particularly in hazardous operations, is important. Workers exposed to toxic substances should receive frequent physical examinations.

Local Exhaust Systems

Local exhaust systems are an important means of occupational disease control. Their purpose is to create a sufficient movement of air to withdraw the contaminants at their point of origin and convey them to a safe point for disposal.

An exhaust system consists of four major parts:

1. Hoods or enclosures near the source of the contaminant.
2. Piping to connect the hoods into the system.
3. Collection equipment.
4. Fan

Each part has its independent function but all must be designed to work together efficiently.

The exhaust hood is the most important part of the system. It should enclose the process as completely as possible. Air velocity decreases approximately with the square of the distance from the hood opening.

Air velocity for effective control varies with the process and material exhausted. Generally speaking, the better the enclosure and design of the hood, the less need for high velocities.

Hoods or enclosures may be in the

form of booths, canopies, lateral hoods, downdrafts through grill openings below the process, or slot-type hoods. The object in each instance being to remove the contaminant without drawing it through the breathing zone of the operators and with minimum interference with processing.

Efficiency of hoods can be increased by the addition of flanges.

Ducts connect the hoods to the central fan, distribute the air flow in direct proportion to the requirements of each inlet, and maintain adequate pipe velocity to convey the contaminant to the point of discharge.

The system should be balanced so that each hood draws the proper amount of air. When this condition has been obtained, all means of adjustment should be permanently fixed. The areas of branch pipes and main ducts can be calculated to give the correct air velocities throughout the system.

Material used for ducts must resist abrasive action of dust or the corrosive effect of some gases and vapors.

Sharp turns in ducts should be avoided. They take extra power and cause a large pressure drop.

Traps with clean-out gates should be provided at the bottom of vertical runs, and clean-out gates at regular intervals on the bottom side of horizontal runs.

Fans should have a capacity slightly higher than calculated requirements to allow for leakage in the system, accumulation of material on fan blades and similar difficulties.

Where the contaminant is hot and has a natural tendency to rise and the operation can be provided with an effective enclosure type hood, natural draft ventilation is often satisfactory.

Dust and Gas Problems

Dust problems are usually more difficult than control of gases, vapors, mists and fumes. Dusty operations tend to project particles so that the hood must provide velocities sufficient to draw them into the exhaust system.

Dust control hoods should be enclosed as much as possible or the hood should be located to take advantage of the directional effects of the dust flow.

Dust removal systems generally require higher air velocities and ducts of heavier gauge metal than those designed for gases.

Disposal of Contaminants

Equally as important as collecting the air contaminant is its proper disposal. Gases, vapors and mists may often be discharged to the outside atmosphere at a point where they will not recirculate around the premises in harmful concentrations.

Dusts, both harmful and nuisance,

require the use of dust collectors in the system.

Recirculation of air from exhaust systems is not generally desirable, particularly when the air has contained gas or fumes. Where the dusts removed are of the nuisance variety recirculation after cleaning is often permissible. This practice is not desirable where dusts containing lead, silica, asbestos, and others, are handled. The air coming from the cleaning device must fall within the permissible range for harmful or flammable dusts.

Dust Collectors

Methods of removing dust from the air exhausted by the system include:

1. Filtration
2. Electrical precipitation
3. Wet methods
4. Dynamic precipitation
5. Supersonic flocculation

Filters are the oldest and simplest way of removing dust. They consist of porous mediums through which dust-laden air is drawn. Some filters are designed to collect dust in the form of a layer on the upstream surface. This is characteristic of cloth and paper filters. The thicker types, such as those constructed of metal mesh treated with oil, have a greater dust-holding capacity.

A practical filter should have the following characteristics: (1) low initial resistance to air flow; (2) reasonable length of service; (3) efficiency under changes of temperature and humidity; (4) low flammability; (5) low replacement cost or ease of cleaning; (6) low maintenance cost; (7) freedom from odors.

Electrostatic precipitation. This method is highly efficient, particularly for fine dusts which are difficult to remove by other methods. It offers low resistance to air flow.

Electrostatic precipitators are not efficient in collecting large particles moving with considerable force, nor for high concentrations of dust. They



Plexiglas acrylic plastic used in two 80-foot skylights withstands strain of cranking for opening and closing for ventilation. Translucent panels also help to diffuse light.

REFERENCES

Ventilation and Air Conditioning

Heating, Ventilating and Air Conditioning Guide (1949)—American Society of Heating and Ventilating Engineers.

Industrial Ventilation—Safe Practices Pamphlet No. 37, National Safety Council. Exhaust Systems, Fundamentals Relating to Design and Operation of (29-report)—American Standards Assn.

Light and Ventilation, Building Code Requirements for (AS3.1-1946)—American Standards Assn.

are valuable, however, when the manufacturing process requires a practically dust-free atmosphere. Improvement in the design of equipment will undoubtedly result in extension of this method.

Cyclones. A cyclone consists of an outer cylinder fitted with an inverted cone-shaped hopper and an inner concentric cylinder which serves as a discharge duct. Air from the main duct of the exhaust system, under high velocity, enters the large chamber where the air is given a circular motion. The heavier particles are thrown to the outer wall by centrifugal force and fall along the wall. Air escapes through the top.

A combination of viscous filter and electrostatic precipitation with a self-cleaning feature on some models is available. It solves the problem of dust capacity and of heavy particles.

Cyclones are most effective for large particles, such as sawdust, shavings, heavy lint, etc. After passing through them, air cannot be returned to the workroom without further filtering. Cyclones are relatively inefficient for removing small particles.

Dynamic separators combine a fan and collector in one unit. In form this type of separator is somewhat like a cyclone, but the centrifugal separating action is performed by the revolving blades. It is more efficient than the cyclone.

In some types water spray is introduced with the dust at the inlet. Wet collection increases the efficiency for fine dusts.

Wet collectors use several devices for obtaining contact of water with the exhausted air so that dust particles form a sludge. One type consists of sprays or water curtains through which dust-laden air is drawn. These are efficient collectors for many types of dust. An important application is in the control of dust explosions from powdered aluminum or magnesium.

Supersonic flocculation. In this method, suspended dust is passed through a field of supersonic vibrations, inaudible to the human ear, generated by a high-frequency siren. Vibration flocculates the fine particles and the aggregates are then collected by cyclones or other measures for collecting relatively coarse particles.

Light for Seeing



General and supplementary lighting for small parts assembly. Industrial reflectors containing two 40-watt fluorescent lamps are mounted in continuous rows on 10 foot centers. Mounting height is about 12 feet. Supplementary lighting units are 2½ feet above table. Installation provides 180 footcandles in service. (General Electric Company)

THE ADVANTAGES of good illumination to an industrial establishment are many and obvious. No environment factor is more conspicuous.

Lighting involves the whole work area as well as the light source and fixtures. Lighter, brighter colors on the walls, floors and machines, kept bright by frequent cleaning and periodic repainting, reflect a higher percentage of light.

Improved lighting makes it possible to see much smaller objects. This aids quality control of the product through all stages from fabricating to inspection, with less eyestrain for the workers.

More efficient arrangement of machinery and better utilization of floor space are added advantages. Straight production lines are facilitated.

Wherever lighting has been improved, better housekeeping has invariably followed. Dirt and disorder become more conspicuous and there is a greater incentive to improve conditions generally.

Light and safety. The importance of light in preventing accidents is seldom questioned, even though statistics on the proportion of accidents due to poor lighting are meager. Estimates have varied from 15 to 25 per cent.

Illumination Essentials

Both the quality and quantity of light are important in the well-lighted workroom. Both affect ability to see easily, accurately and quickly.

Quality. Alternate light and dark areas in strong contrast are undesirable because adapting the eye to first one and then the other is fatiguing. This can be avoided by sufficient general illumination throughout the room. Surfaces with high

reflectance (30 to 60 per cent) reflect light toward the working areas and help to reduce contrasts between walls, ceilings, windows and lighting fixtures.

Some directional and shadow effects are desirable in general lighting for accentuating the depth and form of solid objects, but harsh contrasts should be avoided. Clearly defined shadows, if not too deep, simplify the seeing task in some operations, as in some textile inspection.

Quantity. Recommended levels of illumination for a wide variety of operations will be found in many reference works, including the **IES Lighting Handbook**.

Illumination levels are determined from readings of a light meter at the spot where the light is needed. The eye alone is not a reliable gauge. For general overhead lighting, levels range from 5 footcandles for storage areas to 50 footcandles where work is more exacting.

For precision work, general lighting may not supply enough light at the point of operation. Supplementary lighting may be used to provide 100 footcandles for such prolonged

REFERENCES

Light and Color

IES Lighting Handbook (1947)—Illuminating Engineering Society.

Color's Cash Value, by Faber Birren—National Safety News, Jan. 1949, p. 37.

Footcandles Up; Accidents Down, by M. F. Biancardi, National Safety News, Apr. 1949, p. 28.

Time-Saving Light, by R. H. Scott—National Safety News, Oct. 1948, p. 96.

Fluorescent Lamps, Safe Disposal of—Safety Reprint Gen. 9, National Safety Council.

Try Color—Safety Reprint Gen. 10, NSC. Color in Industry—Data Sheet D-Gen. 44, NSC.

and exacting seeing tasks as fine bench and machine work.

For extra fine inspection and assembly work, as in making jewelry and precision instruments, levels as high as 200 footcandles are recommended.

To insure maintenance of adequate levels, even where conditions are favorable, the system should be designed to give initially at least 25 per cent more than the recommended minimum.

Where dirt collects rapidly and adequate maintenance is not provided, the initial value should be 50 per cent above the minimum.

General lighting. Modern practice provides a uniform level of illumination throughout the work area. Light is available at any point when needed. If the level is uniform, machines, tables and other equipment may be moved without changing the lighting installation.

With adequate general lighting plus supplementary lighting, it is possible to keep the brightness ratios between the work surface and the surroundings within the comfort range, not more than 10 to 1.

Supplementary lighting. Difficult seeing tasks require more light than can be obtained economically by overhead general lighting. For such work, supplementary lighting fixtures may be used. Two types of supplementary equipment meet most requirements. Small concentrating projectors increase the general light on the work and provide directional quality.

In fixtures of another type, large area, low brightness fixtures may provide either general lighting for a small area or extra light for critical work, such as inspection.

All supplementary lamps should be shielded, louvered or mounted to avoid glare.

Artificial Light Sources

Three common sources are: (1) Incandescent or filament lamps; (2) Fluorescent lamps; (3) Mercury vapor lamps.

Incandescent lamps of many types are available up to 1500 watts for general and special service. There is a type for almost every industrial, public and domestic need. For many purposes its lower cost and greater convenience may offset the higher efficiency of other light sources. No auxiliary equipment is needed; merely a standard socket and available current.

The quality of light produced is pleasing to most eyes and most colors look well under it.

Fluorescent lamps have the advantages of high lumen per watt efficiency and relatively low heat output—about one-fourth that radiated from filament lamps. This is a decided advantage in air-conditioned interiors.

—To page 40

Color at Work

COLOR is a highly useful tool in industrial operation and maintenance and paint is the medium for its application. It aids safety, efficiency and morale through:

1. Improved visibility
2. Efficient and economical use of light
3. Providing pleasant and restful surroundings
4. Identification of fire equipment, hazards, warnings and instruction

Psychology of Color

People respond mentally and emotionally to certain colors. General reactions to familiar colors are:

1. Yellow—Cheering and stimulating.
2. Blue—A cool color, effective where temperatures are high.
3. Green—Has some of the effects of blue and yellow and is restful to the eyes. Blue-green gives a sensation of coolness. Yellow-green has more warmth.
4. Red—Suggests danger and excitement.
5. Orange—Combines red and yellow; a bright, warm color to be used with discretion.
6. Violet and purple—Rich colors implying luxury.

Walls and Ceilings

Light colored ceilings reflect more light and therefore make seeing easier. Sometimes, however, light surfaces may reflect too much light, causing glare, distraction, and fatigue. Sharp contrasts in bright and dark areas in working places cause eyestrain because of the continual adjustment of the lenses of the eye.

White is widely used for ceilings because it reflects more light—80 to 88 per cent. For rooms with low ceilings, or where people frequently look up at them, as in hospital rooms, a color of lower reflectance, such as cream, ivory or sky blue, may be used.

Colors of high reflectance are also suitable for overhead networks of girders, pipes and other equipment.

Soft tints, such as light gray, pale green and light blue are suitable for sections of walls in the range of vision. Soft gray, for example, is restful and does not show dust.

A dado extending to the height of work benches and machines, or about one-third the height of the wall, is useful in concealing stains, soil and marks on the lower walls. It may be a deeper tone of the color used on the upper wall.

Floors should have a reflectance value of 25 per cent or more. For machines, desks, etc., 25 to 40 per cent is suggested.

Colors for Machines

To make it easier to see the work and to avoid injury, paint is used to spotlight the point of operation. The body of the machine is painted in one color and the working areas. Four shades of gray, ranging from light to dark, are standard colors for machines. Critical parts should stand out in cream, light tan, or other light contrasting colors.

Light sources and color. Type of light source should be considered in selection of colors. Incandescent bulbs tend to reduce strength and intensity of color because of a slight yellowing effect of the light.

Fluorescent lighting is of three

PAINT REFLECTION VALUES (New Jersey Zinc Co.)

	Per cent
White	88
Cream	69
Ivory	67
Sky blue	65
Pale green	59
Buff	52
Aluminum	41

types — white, daylight and soft white. Daylight units give a bluish hue and can be used with blue, green and blue-violet. White and soft white units produce a warm light suitable for ivory, cream, beige, rose and tan. Neutral gray can be used with incandescent, fluorescent or mercury light.

Identification of Hazards

Safety codes for the use of standard colors for identification of equipment and hazards have been developed by the American Standards Association. **Safety Color Code for Marking Physical Hazards and the Identification of Certain Equipment** Z35.1 specifies uniform colors for marking physical hazards, for indicating the location of safety equipment, and for identifying fire and other protective equipment.

1. Red is recommended for identification of fire protection equipment, and for walls or supports on which extinguishers are mounted; flammable liquid containers (except shipping containers) on which the name of the contents should be stenciled; lights at barricades and danger signs; emergency stops on machines such as rubber mills, wire blocks, and flat work ironers; and emergency stop buttons for electrical switches.

2. Yellow has high visibility and is recommended for marking hazards that may result in slipping, falling, and bumping into objects. Solid yellow, and stripes and checks of yellow and black, may be used to attract special attention. Top and bottom treads of stairways, low beams and pipes and crane hooks are places where yellow may be used. The combination of black and yellow stripes often is used on mobile equipment, such as tractors and industrial locomotives.

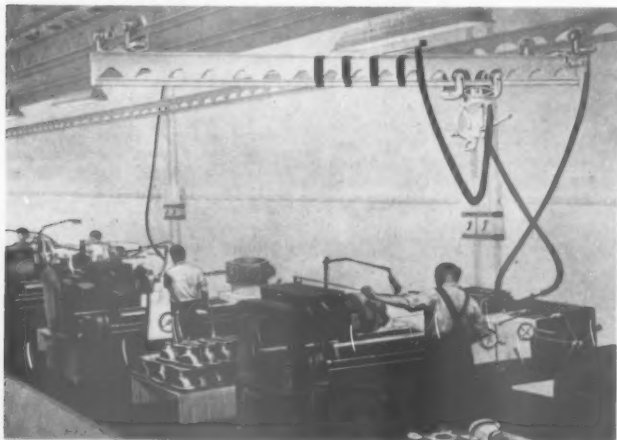
3. Green in combination with white, such as a green cross on a white background, is used to designate the location of first-aid and safety equipment. Location of stretchers, gas masks, and bulletin boards is identified by this color.

4. Black and white, and combinations of them in stripes or checks, are used for housekeeping and traffic markings.

Use of three additional colors is proposed in a revision of this code:

1. Orange has special attention value and is proposed to highlight

—To page 30



Functional use of color in machine shop. Light walls and ceiling reflect large percentage of light. Machines are in green, points of operation in ivory or buff. Orange and red are used for switches and wheels. (Pittsburgh Plate Glass Company)



Pittsburgh

contributes to

- Higher plant efficiency
- Greater safety
- Better housekeeping

White Sewing Machine Corporation utilizes scientific application of the energy in color in six and one-half million dollar expansion program to improve working conditions and increase production.

THE WHITE SEWING MACHINE CORPORATION, of Cleveland, Ohio, built more units last year than in any preceding year in its history. Production executives attribute a substantial part of this increase to Pittsburgh COLOR DYNAMICS.

● Recently, White embarked upon a six and one-half million dollar modernization and expansion program. Included was the purchase and remodeling of a building to house an up-to-date metal division. This plant now turns out more machines with less floor space than the old factory.

● "Several years ago we used Pittsburgh COLOR DYNAMICS in repainting our main offices," writes E. J. Sebek, Vice-President in charge of manufacturing. "So beneficial did this practical use of the energy in color prove to be that we decided to use this system in 'color engineering' the new plant."

● "In place of drab, brown walls, we

now have attractive surroundings of eye-rest and morale-building colors. Focal colors on working parts of machines reduce eye-strain. Our workers see their jobs better and do not tire as quickly. Nor do they sustain as many lost-time accidents because controls and hazard areas are clearly indicated by safety colors.

● "Volume and quality of production have been improved. Morale has been raised by the better and cleaner working conditions. Our workers take greater pride in their surroundings so that housekeeping problems have been reduced."

● "We have a constant stream of visitors to this new plant. Many of these are production executives from other companies who are eager to see what we have done and how. We are always happy to recommend the use of COLOR DYNAMICS to them because of what it has accomplished."

● Why not investigate what Pittsburgh

COLOR DYNAMICS might do for you? Try it on a few machines or in a department or two—and see the difference it makes! **FREE—Color Engineering Study of Your Plant on Request!**

● For a complete explanation of COLOR DYNAMICS, send for our free, profusely-illustrated booklet. Better still, let us make a scientific engineering study for you—free and without obligation. There's a trained COLOR DYNAMICS expert at each of our 75 warehouses. Call your nearest Pittsburgh Plate Glass Company branch and arrange to have a representative see you at your convenience. Or mail coupon.

SEND FOR A COPY OF THIS BOOK!

Pittsburgh Plate Glass Co., Paint Div.
Department HS-31, Pittsburgh 22, Pa.

☐ Please send me a FREE copy of your new revised and enlarged booklet, "Color Dynamics in Industry."
☐ Please have your representative call for a Color Dynamics Survey of our premises without obligation on our part.



Name _____

Street _____

City _____

County _____

State _____



PITTSBURGH PAINTS

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS

PITTSBURGH PLATE GLASS COMPANY

Air Casualties

It's bad air that does it. But you can step up production by putting a Coppus Blower on the job to keep the air moving — and keep the men cool.

The kind of air a man works in has a lot to do with how much work he can turn out.

In confined places like shipholds or tanks or drums or boilers . . . or wherever the air is stagnant or hot or full of fumes . . . a Coppus Blower is a *must* for getting first-class work out of the men, all the time.

A Coppus Blower or Exhauster helps avoid sickness and lassitude due to bad air . . . and improves morale, too.

Portable and adaptable for special purposes, Coppus Blowers and Exhausters will have dozens of uses around your plant. The "Blue Ribbon" (a blue painted band) is your assurance of quality performance at lowest cost.



COPPUS

BLUE RIBBON BLOWERS



THE BLOWERS THAT PUT MORE MINUTES IN EVERY MAN-HOUR

CABLE MANHOLE AND TANK VENTILATORS — BOILER MANHOLE BLOWERS AND EXHAUSTERS — HEAT KILLERS — SHIPHOLD VENTILATORS . . . DESIGNED FOR YOUR INDUSTRY — ENGINEERED FOR YOU

MAIL THIS COUPON To Coppus Engineering Corp., 123 Park Avenue, Worcester 2, Mass. Sales offices in THOMAS' REGISTER. Other "Blue Ribbon" Products in BEST'S SAFETY DIRECTORY.

PLEASE SEND ME INFORMATION ON SUPPLYING FRESH AIR TO MEN WORKING:

- | | | |
|---|--|---|
| <input type="checkbox"/> in tanks, tank cars, drums, etc. | <input type="checkbox"/> on boiler repair jobs. | <input type="checkbox"/> exhausting welding fumes. |
| <input type="checkbox"/> in underground cable manholes. | COOLING: | <input type="checkbox"/> stirring up stagnant air wherever men are working or material is drying. |
| <input type="checkbox"/> in airplane fuselages, wings, etc. | <input type="checkbox"/> motors, generators, switchboards. | <input type="checkbox"/> drying of walls, sheets, etc., after treated with coating material. |
| <input type="checkbox"/> on cake ovens. | <input type="checkbox"/> wires and sheets. | |
| <input type="checkbox"/> on steam-heated rubber presses. | <input type="checkbox"/> general man cooling. | |
| | <input type="checkbox"/> around cracking stills. | |

NAME

COMPANY

ADDRESS

CITY

(Write here any special ventilating problem you may have.)

The Housekeeping Program

HOUSEKEEPING in industry goes far beyond clean-up activities. It is involved in every phase of plant operation, with conspicuous benefits in productive efficiency, sanitation, health, fire and accident prevention and employee morale, as well as in improved appearance.

The housekeeping program includes the entire plant premises, both indoors and out.

Maintaining order and cleanliness is a joint responsibility of management, supervision and employees. The best program cannot succeed without the cooperation of all employees, and this requires constant stimulation.

The plant. A well-designed and well-built plant is easier to keep clean and free from hazards. Some of the essentials are:

1. Aisles clearly marked.
2. Ample room to work.
3. Adequate and convenient storage for materials and tools.
4. Handling material methods and equipment that avoid congestion and bottlenecks.
5. Ventilation to remove dust and fumes at the source.
6. Floors and walls that require a minimum of maintenance.
7. Good lighting; ample window space for natural light, and well-distributed artificial light. (Windowless plants have special problems.)
8. Personal service facilities: clean, up-to-date washrooms, lockers, and an inviting place where employees may eat lunch.

Organization and Personnel

Housekeeping has become a science and maintaining orderly and hygienic working conditions requires an adequate crew of able-bodied men. They should be thoroughly trained in their duties and provided with the necessary equipment and supplies.

Equipment

Vacuum cleaners are useful in industry as in the home. Heavy duty types are available in several models with a variety of attachments. In addition to floor cleaning, they remove dust accumulations from corners and from places overhead.

Where dust sources are relatively close together, a piped system may be practical. Cleaning implements are attached to inlets located at frequent intervals. Some hotels, office buildings and factories use this type of dust removal.

For most industrial uses, portable vacuum cleaners are more suitable. In most factories the dust sources are widely scattered and the more flexible types of portable equipment meet all requirements.

Floor machines of several types handle the heavier jobs of floor cleaning. With them floors can be scrubbed or dry-cleaned and waxed and polished. Like vacuum cleaners, many types have attachments.

Crusts of dirt, oil and metal cuttings can be removed with a revolving wire brush much more quickly and easily than it can be done by hand spudding.

For finer finishing, steel wool rolls are used. Dry-cleaning models have a vacuum pick-up for collecting dust.

Scrubbing, rinsing and drying can all be done by machine with a minimum of interruption to production.

For large floor areas, or where cleaning would involve excessive manual effort, the floor machine is maintenance "must."

Power sweepers are time and labor savers where large areas must be swept and the litter is relatively light. Some models are also used for sweeping up leaves and litter from the plant grounds and driveways.

Brooms, brushes, mops, etc., are needed in both large and small plants to supplement the mechanized equipment. Tools of good quality are more durable and efficient and they encourage better work.

For dry sweeping, a wide cotton mop or a hair broom may be used. Oily mops leave a film which may catch dust.

Aisle marking machines. Wide clear aisles are signs of a well-kept plant. White lines are constant reminders to keep them free from ob-



Removing oily grime from the floor of a brass mill with a floor machine. (Western Cartridge Company)

PLANT HOUSEKEEPING

Check Card—General Conditions

Keep it clean and keep it orderly. CHECK:

- | | |
|----------|--|
| FLOORS | <input type="checkbox"/> Dropped objects picked up |
| AND | <input type="checkbox"/> Scrap pieces in box |
| STAIRS | <input type="checkbox"/> Oil, grease spills wiped up |
| | <input type="checkbox"/> Stock material out of way |
| | <input type="checkbox"/> Good foundation—straight sides |
| PILES | <input type="checkbox"/> Layers cross-tied |
| | <input type="checkbox"/> Break-down from top |
| | <input type="checkbox"/> Trucks |
| AISLES | <input type="checkbox"/> Hose and electric cord } not in aisles |
| | <input type="checkbox"/> Ladders, boxes, etc. |
| | <input type="checkbox"/> Oily clothes and rubbish out of locker |
| LOCKER | <input type="checkbox"/> Floor dry and clean |
| AND | <input type="checkbox"/> Newspapers, lunch scrap in waste can |
| WASHROOM | <input type="checkbox"/> Flammable waste in covered can |
| | <input type="checkbox"/> Fire equipment not blocked |
| FIRE | (See other side) |



SAFETY INSTRUCTION CARD No. 29
National Safety Council PRINTED IN U.S.A.

struction and to pile stock within designated areas. The lines can be renewed quickly, neatly and economically with an aisle-marking machine.

White, which has been adopted for highway traffic lines, is preferred for floor marking within the plant.

Trash containers at convenient locations throughout the plant help to keep litter off the floor. Containers with self-closing lids are best, particularly where oily rags and waste are stored. Containers may be painted a distinctive color to call attention to their presence.

Steam-cleaning units, which deliver jets of steam and cleaning solution under pressure, are used for cleaning many types of processing and fabricating equipment and removing stubborn deposits of dirt from floors, walls, and ceilings.

These units are available in both stationary and portable models.

Smoking areas are being provided in an increasing number of plants. Receptacles which will not tip and spill their contents should be provided for cigaret butts and pipe ashes.

Supplies

Development of improved cleaning materials for the janitor force has kept pace with improvements in mechanical cleaning equipment. Yellow soap, strong cleaning powders, and odorous disinfectants have their uses but gentler cleaners are now available. Much research has gone into the development of safe and effective cleaners. Manufacturers can furnish helpful data on housekeeping and maintenance problems.

Detergents. Basically, it is water that does the cleaning. But water alone is not always effective. It needs

the aid of a detergent—soap or one of the newer synthetics. Soap is a detergent but not all detergents are soaps.

There are three types of dirt: (1) Water soluble matter; (2) Oils and greases; (3) Inert solids.

A general purpose cleaner must dissolve, emulsify or suspend the dirt. It must not form a curd when used with hard water.

Soap, in spite of its general usefulness, is not a perfect cleaner. Its worst defect is the formation of curds in hard water. A further disadvantage is that it is made from animal or vegetable fats which be-

come scarce in wartime.

So-called synthetic detergents are derived from sources other than fats. Petroleum, coal tar chemicals, and by-products of certain industries provide the raw materials. The chemical reactions involved are often complicated.

Alkalis, such as caustic soda, soluble silicates and various phosphates, form the third class of cleaning materials. They are useful for certain types of industrial cleaning where soaps are not applicable.

Care of floors. All types of floors have longer life if properly cared for.

A protective coating of some type is desirable.

Hardwood flooring in its natural state dries out quickly and begins to crack and splinter under traffic. Scrubbing opens the pores of the wood and excessive water causes it to swell. Sealers, varnish and enamels are used as coatings. A sealer which penetrates the wood and produces a durable finish has numerous advantages.

Concrete may also be treated with a sealer, or with a penetrating dye if color is desired.

Linoleum, asphalt tile and rubber tile have an impervious and decorative surface and care consists of cleaning and preserving this surface.

Wax. Wax is used to protect the surface and to preserve its appearance. It makes daily maintenance easier by keeping the dirt on the surface instead of being ground into the floor.

Water emulsion (self-polishing) wax can be used with safety on all types of floors commonly used in industry. Buffing waxes contain a hydrocarbon solvent which will injure asphalt tile, mastic or rubber.

Self-polishing waxes are considerably less slippery than buffing waxes. Tests have been made to determine the coefficient of friction of various floor finishes on different types of floors. However, it has not been found possible to give any finish a rating which would apply for all surfaces and all conditions.

For floor scrubbing the cleaner should do the work without leaving a slippery film. Soap is permissible for such surfaces as concrete, com-

—To page 32

TORNADO®

Wet or dry—positive pick-up!

Vacuum Cleaner

For over 30 years, Tornado has been used in hundreds of industrial plants, hotels, restaurants, hospitals, schools and other institutions. Tornado saves time, cuts maintenance costs, can be operated by inexperienced personnel. Sturdy, lightweight, gives years of trouble-free service. Quickly adaptable to any cleaning chore. Free demonstration—write for name of nearest representative.

FREE! Bulletin 600-NS

BREUER

ELECTRIC MFG. CO.

8100 N. RAVENSWOOD AVE. • CHICAGO 40, ILL.




FOR VENTILATION, FUME AND DUST CONTROL

FLEXAUST

SPIRAL-REINFORCED HOSE
LIGHT, STRONG AND VERY FLEXIBLE

Flexaust is of proven suitability for a wide variety of suction and pressure uses in ventilation, fume and dust control. **Extremely Easy to Install**—Efficient and Economical in Use. SIZES 1 1/4" to 24" dia. Various Flexaust types, accessories, and other hose types also available.

BLORLEX

Non-reinforced collapsible

PORTOVENT

Ring-reinforced retractable

AMERICAN VENTILATING HOSE CO.

Dept. SN-3, 15 Park Row, New York 7, N. Y.

Plant: Amesbury, Mass.

Write for full descriptive data and prices



REFERENCES

Housekeeping, Sanitation, Personal Services

- Industrial Housekeeping—Safety Practices Pamphlet 45, National Safety Council.
- Industrial Sanitation (Drinking Water, Wash and Locker Rooms, Toilet Facilities)—Safe Practices Pamphlet 27, NSC.
- Industrial Sanitation in Manufacturing Establishments, Code for, Z4.1-1935, American Standards Assn.
- Drinking Fountains, Specifications for, Z42-1942—American Standards Assn.
- Cleaning Machinery and Electric Motors—Data Sheet D-Gen. 37, NSC.
- Cleaning with Hot Water and Steam—Data Sheet D-Gen. 32, NSC.
- Falls of Workers, Safe Practices Pamphlet 99, NSC.
- Floors, Slippery—Data Sheet D-Gen. 1, NSC.
- Good Housekeeping in Mill, Mine and Shipyard—National Safety News, April 1949, p. 18.
- Spring Again, and That Means Clean-Up—National Safety News, Apr. 1948, p. 34.
- Lunchrooms for Employees (B405)—Metropolitan Life Insurance Co.
- Industrial Lunchrooms in Wartime—Studies in Personnel Policies No. 48, National Industrial Conference Board.
- Installation and Maintenance of Toilet Facilities in Places of Employment—Bulletin No. 99, Women's Bureau, U. S. Dept. of Labor.
- Methods of Sanitizing Eating and Drinking Utensils—U. S. Public Health Service, Aug. 1944.

U. S. HOFFMAN

MACHINERY CORPORATION
AIR APPLIANCE DIVISION
111 FOURTH AVE., NEW YORK 3, N. Y.
CANADIAN PLANT, NEWMARKET, ONT.

DUST
**HERE'S A SAFETY
IN NUMBERS!**

5
SIZES OF
HOFFCO-VAC
Portable
VACUUM
CLEANERS
and

STATIONARY SYSTEMS
IN SIZES FROM
3 to 100 H.P.

For your campaign against dust that is hazardous to health or damages production, Hoffman offers a broad selection of vacuum cleaning equipment with a type and size exactly right for your cleaning problem. Heavy-duty portables in 1½, 3, 5 and 7½ horsepower models, plus a 5 H.P. model powered by gasoline engine. For these, or the wide range of stationary systems, your Hoffman representative can furnish exact recommendations.

NEW! 1½ H.P.
HOFFCO-VAC
operates 35-ft.
Length of Hose

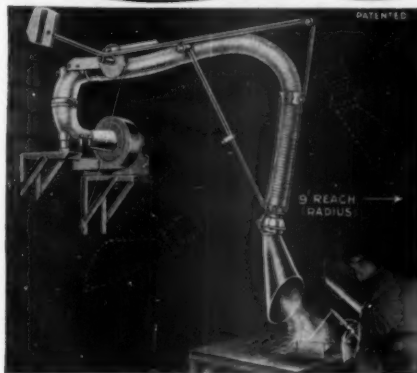


Industry's first BIG little vacuum cleaner! Built for heavy-duty, continuous service. Big in dust storage capacity, suction and dust separation, yet compact, portable and easy to operate.

WRITE FOR BULLETINS!

HOFFMAN BUILDS
Multistage Centrifugal
Blowers and Exhaustors

*"It certainly is a relief to have fumes
and heat removed while I'm welding.
The Ruemelin Collector has great suction.
It makes a day's work pleasanter!"*



Ruemelin Fume Collector in operation.

Welding shops equipped with Ruemelin Fume Collectors are assured of a clean shop atmosphere. Noxious fumes, heat and smoke are eliminated at their source, thus improving working conditions, lessening fatigue and paving the way for increased plant production.

The Ruemelin Fume Collector hood can be instantly placed where needed anywhere in the booth welding area. No tedious adjustments necessary. Just pull the inlet hood to the welding position and you are ready to go. Approved by state industrial commissions and by compensation insurance companies. Simple to install. Thousands in service. Many users send in repeat orders. Write for bulletin 37-D today.

—RUEMELIN MFG. CO.—

MANUFACTURERS AND ENGINEERS
SAND BLAST AND DUST COLLECTING EQUIPMENT
3885 NORTH PALMER STREET • MILWAUKEE 12, WISCONSIN, U. S. A.

TORNADO®

portable, electric blower
Now you can get fast, thorough, safe cleaning of
motors, machinery,
critical areas. The best
to remove dirt, dust, lint
equipment and
and simplest way
and oily fuzz.

**powerful blast of
dry air!**

Tornado offers 4 industrial models
and 3 special models. Many at-
tachments for unusual cleaning
requirements. Free demon-
stration—representatives
in principal cities.

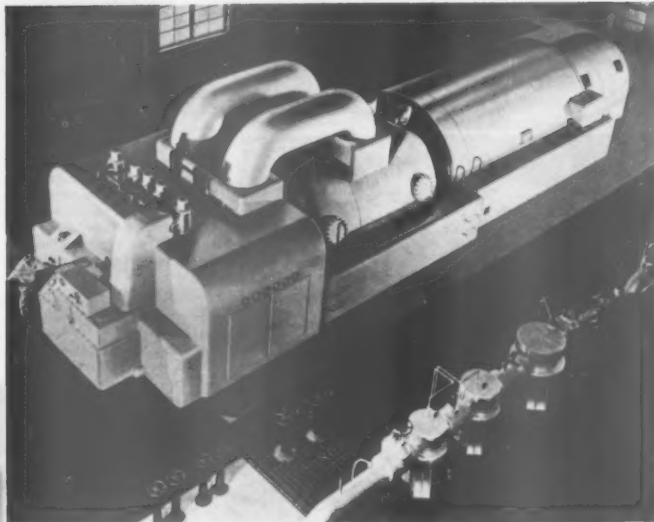
FREE!
Bulletin
579



BREUER ELECTRIC MFG. CO

• DEPT. NS3 • 5100 N. RAVENSWOOD AVE. • CHICAGO 40, ILL. •

Floors and Flooring



Three types of floor are shown in this epic and span turbine generator room—concrete, steel plates, and grating. (Electrical Review, Allis-Chalmers Manufacturing Company)

FLOORS must be designed and built to support both static and moving loads. In addition the surface must withstand the impact and abrasion of foot and wheel traffic and the blows of heavy objects dropped accidentally. The surface also must offer good traction and resistance to slipping under normal use.

With a floor structure adequate to carry the expected loads with an ample margin of safety, management's concern will be a floor surface that will most nearly meet the requirements of operation and safety. Usually a compromise between cost and requirements will be necessary.

Breaks in floors should be repaired promptly to remove the immediate tripping hazard and a possible major job of replacement.

General requirements. Various operations make special demands on the floor but the following specifications, or a reasonable compromise, are desirable:

1. **Strength**—Sufficient to carry up to four times the expected static load or six times the moving load.
2. **Resistance to slipping**—Material should not be slippery nor likely to become slippery through wear or contact with other materials.
3. **Durability**—It must stand up under normal traffic and wear reasonably even without developing holes and splinters.
4. **Maintenance**—It should be easy and economical to keep sanitary and in repair.

5. **Fire resistant**—Always desirable; essential in many locations.

6. **Comfort**—Resilience and low heat conductivity reduce fatigue.

7. **Quietness**—Noisiness may offset other advantages.

8. **Initial cost** must be comparable with other materials.

Materials

The perfect flooring material has not yet been discovered. Many materials are excellent for certain uses but each has its limitations. Some with a high rating for durability and resistance to slipping may be too high in installation cost for large areas. These may be practicable for smaller areas where a sure footing or resistance to chemical or abrasive action is essential.

A smooth, hard surface, like concrete, is particularly susceptible to chipping and abrasion. Trucks with steel wheels and dropping heavy metal objects are destructive to floors. Rubber tires are easier on floors of all types, as well as on the ears.

Concrete is suitable for a wide variety of industrial uses. It is one of the best materials for damp locations. The surface should be graded to avoid low spots where liquids could collect.

Floor drains with screen strainers are desirable for many locations where there is a possibility of flooding or where flushing the surface is essential for cleaning.

The mix should not be skimmed. The water-cement ratio should be as low as possible. Machine finishing

helps in getting a dense concrete.

Often it is trowelled too smooth with a steel trowel. Finishing with a wood float and then going over it lightly with a carborundum stone, if desired, will produce a surface that will not be too slippery. A very smooth surface can be more tiring to the feet than a relatively rough one.

Concrete should be cured properly and for a long enough period. When the floor has set, and before it is used, hardening compounds can be applied to prevent dusting.

Concrete floors can be made conductive and non-sparking with surfacing compounds containing non-ferrous metallic aggregate. This prevents both static sparks and sparks from contact with metallic objects. This treatment also makes the floor more wear resistant.

For repairing holes and cracks some types of compounds are superior to concrete. Patching with concrete, even when well done, may crack out under heavy loads.

For painting, a general purpose floor enamel may be used but finishes prepared especially for concrete are more durable. New concrete should first be treated with zinc sulphate solution to neutralize alkalinity.

Asphalt is non-dusting, elastic, odorless, and easily repaired. It is resistant to weather and moisture but is affected by oils, solvents, acids and alkalis. It stands up well under traffic but ordinary commercial grades of asphalt soften at temperatures above 95 degrees F.

Harder grades of asphalt remain firm up to 158 degrees F. There are also acid-resisting grades.

Asphalt emulsion, sold under various trade names, is made into a mortar with sand and cement and laid cold about one-half inch thick. On a substantial wood base it will carry moderate traffic; with a concrete base it will stand heavy trucking. The surface is somewhat harder than the hot mastic type. It is also affected by oils and solvents.

Plastic flooring materials of several types are available. They are generally resistant to oils and chemicals but the manufacturer should be consulted about the exposure. These materials are higher in price and used principally for patching and resurfacing limited areas.

Terrazzo and magnesite are decorative materials used frequently for halls, washrooms, etc., in public buildings. On a rigid base they will stand moderate loading and traffic.

Ceramic tile offers considerable resistance to abrasion, chemicals and staining. It is used in many food products plants where floors must be washed frequently.

Linoleum is quiet, resilient, easily cleaned, and a poor conductor of heat.

—To page 36

Portable Ladders

EVERY industrial establishment has operations which involve getting from one level to another. Where frequent access to any location is necessary, stairways, ramps or fixed ladders are desirable. For occasional access to different points, portable ladders are needed. They are particularly important in maintenance and construction work.

Few accidents are caused by ladders which are actually defective when purchased. However, mistaken economy sometimes results in the purchase of ladders which are too light or otherwise unsuited to the job. Neglect and abuse of originally sound ladders, and unsafe practices by the user are frequent accident causes.

In selecting ladders for industrial use, a reliable guide is the American Standard Safety Code for Wood Ladders, A14.1-1948. Ladders built according to Code specifications are plainly labeled.

Metal ladders are not covered by an American Standard Code. However, those marketed by reliable manufacturers meet exacting tests. The Metal Ladder Manufacturers Association, organized in April 1949, has established its own standards for this equipment.

Definitions (ASA)

The following types of ladders are commonly used in industry:

1. Fixed ladder—One fastened to a structure in a permanent position.
2. Portable ladder—One which may be used at various locations, such as single, extension, step, and trestle ladders.
3. Single or straight ladder—One consisting of but one section.
4. Extension ladder—One consisting of two or more sections trav-



Platform or safety ladder.

eling in guides or brackets so arranged that it may be adjusted to different lengths.

5. Stepladder—One having treads and so constructed as to be self-supporting.

6. Trolley ladder—One running on or in a track, fastened overhead, the plane of the ladder being at right angles to the line of motion.

7. Side-rolling ladder—One riding on a guide rail, generally fastened to shelving, the plane of the ladder being also its line of motion.

8. Sectional ladder—One consisting of two or more sections so constructed that the sections, when combined, will function as a single ladder.

9. "A" or Trestle ladder—One consisting of two single ladders hinged at the top to form equal angles with the base.



Stepladder with rung back.

10. Extension trestle ladder—One consisting of an "A" ladder with an additional single ladder which is adjustable vertically and provided with a lock to keep it in place.

Materials and Construction

Wood, which meets the requirements of weight and strength at moderate cost, is the most widely used material. Acceptable kinds and grades of wood are listed in the Code.

Ladders may have either spreading or parallel straight lines. They may also have sides flaring at the base to increase stability, and converging at the top for specific uses.

Light Metals. Alloys of aluminum and magnesium are light in weight and resistant to moisture. In case of overload there is deflection warning instead of sudden breakage. Prices are higher than for wooden ladders.

Metal ladders should be examined for sharp edges and burrs on the side rails and for soft metal rivets that might shear off under a load.

All metal ladders are conductors of electricity and should not be used



Extension ladder and ladder shoe.

around electrical equipment. Decals or painted warnings against such use should be carried on all ladders.

Single, extension and stepladders and planks, stages and hangers are available in light metals.

Types of Ladders

Single ladders, extension ladders, stepladders and platform ladders are to be found in almost every industrial plant. For more specialized uses there are trestle ladders and telescoping ladders and towers.

Single ladders up to the maximum length of 30 feet specified by the Code are made. Extension ladders are preferred for sizes longer than 24 feet because of transportation and storage difficulties.

The sectional size of side rails must vary with the length of the ladder and the diameter of the rungs must vary with the width of the ladder between the side rails. The diameter of the rungs should not be less than 1 1/4 inches and that of the tenon not less than 3/4 inch.

—To page 28

REFERENCES

Ladders and Scaffolds

- Ladders—Safe Practices Pamphlet 1, National Safety Council.
- Ladders, Aluminum and Other Metal—Safety Reprint Gen. 7, NSC.
- Ladders, Construction, Care and Use of—Safety Code A14-1948, American Standards Assn.
- Facts and Fancies About Ladders, by L. J. Markwardt and Alan D. Freas—National Safety News, Dec. 1950, p. 26.
- Life Saving Ladders—National Safety News, July 1949, p. 30.
- Protecting Wood Ladders from Decay—National Safety News, Feb. 1950, p. 40.
- Scaffolds—Safe Practices Pamphlet 12, NSC.
- Testing Scaffold Planks, by W. Elwood Roesnager—National Safety News, July 1950, p. 28.
- Safety in the Grandstand—National Safety News, Sept. 1949, p. 34.

Scaffolds and Staging

SCAFFOLDS and staging of various types are used in construction and maintenance work. The two terms are synonymous, the former being used in the construction industry and the latter principally in shipbuilding.

Accidents involving scaffolds are usually serious because they involve falls of men or materials from high levels. Principal causes include defective materials, improper construction, unsafe practices and physical disabilities of the individual. Men who work at high levels should be carefully selected for the job.

Types of Scaffolds

Many types of scaffolds are in use, including some designed for certain trades. The principal types are:

1. Tubular steel
2. Swinging
3. Suspended
4. Built-up wood

Tubular steel scaffolding is used on large construction jobs where it will be in use for considerable time and where work is carried on at great heights. This type of scaffolding may be purchased or rented. When rented, the contract usually includes erection and dismantling.

Steel scaffolds have low wind resistance and are non-combustible; except for the wood planks. Dismantling is less hazardous than tearing down wood scaffolding. Interchangeable parts facilitate erection and dismantling.

All steel members should be rust-proofed by cleaning and repainting after each job.

Tubular steel scaffolds for use inside buildings are frequently mounted on casters. When casters are included, the base section should be made rigid by additional bracing to tie the bottoms of the upright tightly together. Caster locks should be provided to prevent movement while in use.

Portable Scaffolds. Maintenance work in industrial plants and in public buildings is made quicker and safer by portable metal work stands and towers. They provide a broader platform than the platform ladder, permitting more than one man to work and providing more space for tools.

Some types of portable towers are telescoping while others have fixed heights. In addition to the models with four casters, there are work stands of the wheelbarrow type easily moved by one man.

Swinging Scaffolds are useful for painting, tuck-pointing, window glazing and washing, and other operations where the scaffold height must be adjusted frequently as the work progresses.

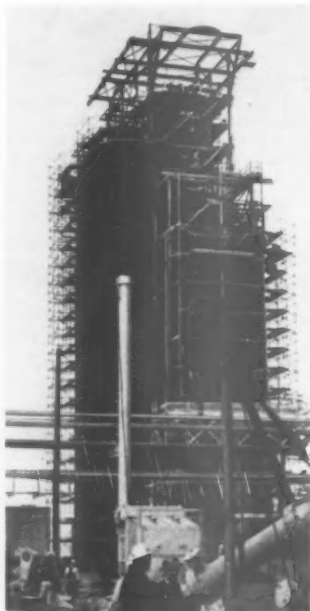
A swinging scaffold should be securely hung from eaves, cornices, or other reliable support, with hooks of adequate strength. Anchorage should be carefully inspected before the hooks are placed.

Ropes should be of the best grade manila not less than $\frac{3}{4}$ inch, on at least six-inch blocks. Steel cable should be cut not less than 5/16 inch. Steel cable is wound on a drum, not pulled by hand.

Suspended scaffolds are supported by outrigger I-beams attached to the frame of the building. They are recommended for use on buildings more than five stories high which have a frame to provide the overhead support. The scaffold is raised and lowered by steel cable operated by a winch.

The shackles or beam clamps holding the cables should be securely fastened to the outriggers with a stop bolt in the outer end of each outrigger. Cables should be securely fastened to the outriggers and to the putlogs which carry the platform or to the hoisting machines.

Built-up Scaffolds. Wooden scaffolds are temporary structures and workmanship and materials are often substandard. Attempted economies frequently result in scaffold failures accompanied by serious injuries if not by fatalities.



Tubular steel scaffolding facilitates work at high levels. (Monsanto Chemical Co.)

Lumber for scaffolding should be inspected on delivery and stored where it will be protected from weather.

Specifying a particular grade of lumber may not be practicable since no one grade will be available in all localities. Names also have different meanings in different sections.

Spruce, fir, longleaf yellow pine, Oregon pine; or wood of equal strength should be used. Material should be straight grained, free from knots, checks, cracks, decay or other defects.

Only the strongest species and grades should be used. In general, the heavier and denser woods are strongest.

Species and grades of lumber recommended for scaffold planks include:

1. Douglas Fir—select structural plank.
2. Southern Pine—merchantable structural longleaf plank and dense structural square edge and sound plank.
3. Larch—structural plank.
4. Norway Pine—select common.
5. Eastern Spruce—select common.
6. Tamarack—select structural plank.

The structural grades of lumber should be used for scaffold planking wherever possible. Where these are not available, each individual plank should be carefully inspected.

No planks of less than 2-inch nominal thickness (1 $\frac{1}{2}$ inch dressed) should be used. Planks less than 8-inch nominal width (7 $\frac{1}{2}$ inches dressed) should not be used.

Railings and toeboards. Most codes require railings on scaffolds more than 12 feet high but railings are desirable on lower scaffolds. A top rail should be 36 to 42 inches above the floor with an intermediate rail half way between the top rail and the walkway surface.

Toeboards are needed wherever men are working at elevated levels to prevent tools or materials from falling.

Overhead protection, consisting of planking heavy enough to stop any falling object, should be provided for scaffolds when men are working overhead. This protection should be not more than 9 feet above the working platform.

Sidewalk bridges. Where construction or repair work is carried on over sidewalks, protection for pedestrian traffic is needed. Sidewalk bridges of adequate strength are provided by the companies furnishing sectional steel scaffolding.

Ladder-jack scaffolds are used chiefly by painters and electricians. They should not be used at a height of more than 22 feet above ground or floor and an unsupported span of more than 10 feet should not be used.



ANOTHER INSPECTION REPORT ON

feralun*

SAFETY TREADS



Feralun Safety Treads after 23 years of service at the Ketterlinus Lithographic Manufacturing Co., Philadelphia, Pa.

“...no signs of wear after 23 years.”

There's a lot of daily traffic between departments of this busy lithographic company, yet for 23 years Feralun Safety Treads have withstood the punishment of thousands of hurrying feet—with “no signs of wear”.

A quarter-century of resistance to wear—a quarter-century free from maintenance and repairs—and a quarter-century of underfoot safety, too, on Feralun's non-slip surface with many years of service ahead.

Examples like this show why architects, engineers and builders insist on Feralun treads, nosings and plates. Made of cast iron with wear-resistant abrasive particles securely embedded in walking surfaces, including the nosings, Feralun provides a sure-footed “grip” that keeps feet from slipping—and wears and wears. The coupon below will bring you full information on Feralun. Send it today.

Also available in Bronze, (Bronzalun) — Aluminum, (Alumalun) — and Nickel Bronze, (Nicalun).

*Reg. U.S. Pat. Off.

**AMERICAN
ABRASIVE METALS CO.**

466 Coit Street
Irvington 11, N. J.

Gentlemen:

Please send me full information on Feralun

Name..... Title.....

Company.....

Address.....



**Examine . . . then
order the Grating with
all 5 superior features . . .**

- 1 Rigid one-piece construction—easy to install.
- 2 Maximum open area for light and air.
- 3 Easy to paint—all surfaces accessible.
- 4 Non-slip Twisted Cross-Bar.
- 5 Self-cleaning—no sharp corners to clog.

Blaw-Knox Grating Has Them All!

WRITE FOR BULLETIN 3343

BLAW-KNOX DIVISION
OF BLAW-KNOX COMPANY
2078 Farmers Bank Bldg.,
Pittsburgh 22, Pa.
Offices in Principal Cities

BLAW-KNOX GRATING *Electroforged STEEL*



PERMA-MATS THE ALL-PURPOSE MATS
that WEAR and WEAR!

- to RELIEVE FATIGUE of employees working on hard or wet floors.
- to CURTAIL ACCIDENTS caused by slipping
- to REDUCE BREAKAGE thru cushioning
- to TRAP DIRT at entrances

Made from selected tires, PERMA-MATS are the finest, longest-wearing mats you can buy. Available in most any length or width. Shipped immediately. Order direct from

PERMA-MATS, Div., MERCHANTS TIRE CO.
ST. LOUIS 3, MISSOURI • 2710 WASHINGTON AVE.

Solid or Open Weave
Only 90¢ sq. ft.
Prepared

Controlling Noise and Vibration

EXCESSIVE noise in a workplace is more than an annoyance; it is a definite occupational hazard. Individual tolerance of noise varies but continued exposure causes nervous tension and fatigue. Permanent impairment of hearing may result.

Levels of Sound. The unit of measuring sound is the decibel. The decibel scale is strictly a physical scale. It does not measure the frequency, which also affects the sensation felt by the ear. In general, the higher the frequency, or pitch, of the sound, the more trying it is to the ear.

Between zero and 10 decibels is the threshold of audibility.

From 10 to 75 decibels is within the comfortable hearing range.

Noise above 90 decibels is considered injurious to the hearing and nervous system. At 120 it becomes acutely painful.

Noise Makers. Here are some noise levels recorded at three feet from various machines:

- Punch presses—96-103.
- Drop hammers—99-101.
- Hydraulic press—130.
- Automatic riveters—95-99.
- Lathes—80.
- Automatic screw machines—93-100.
- Airplane riveting guns—94-105.
- Airplane propeller grinding—100-105.
- Looms—94-101.
- Wood planers—99-110.
- Wood saws—100.

The accumulated effect of smaller noises may also create an excessive total.

Methods of Control. Substitution of a less noisy process, such as welding for riveting, is sometimes possible. But in most operations there are four methods of attack:

1. Isolate vibrating machines by putting them on damping mounts of rubber, cork, springs, or other material.
 2. Enclose noisy operations in insulated rooms.
 3. Apply acoustical treatment to walls and ceilings.
 4. Maintain machinery to avoid noise from worn and loose parts.
- Frequently it is necessary to use a combination of measures.
- Keeping floors in good condition and free from bumps is helpful. Rubber tires on hand and power trucks also make operations quieter.

Personal Protection

Ear Plugs. Where noise cannot be reduced to a comfortable level at the source, ear plugs or stopples often afford considerable relief. These are made of plastic, rubber or wax.

Stopples properly made and fitted have reduced noise as much as 40 decibels while permitting ordinary conversation.

SECURITY UNDERFOOT-OVERHEAD!

A strong, safe catwalk made of WHEELING EXPANDED METAL "Material of a thousand uses"

IT'S a catwalk with safety "built in." The criss-cross, non-slip design of Wheeling Expanded Metal gives a sure grip to walks and platforms. The *strength* of this modern construction metal is another safety factor. Wheeling Expanded Metal is *stronger than sheet metal of the same weight*.

Use this versatile metal for machine guards, tool room enclosures, lockers, storage bins, sanitary shelving, drying racks and hundreds of other places where safety, cleanliness and ventilation count. Write us for information on the many weights and sizes available.

There's an added sense of security in a safety ladder guard using sturdy Wheeling ExM.



Wheeling ExM forms two sides and bottom of this inexpensive assembly line conveyor guard.



WHEELING CORRUGATING COMPANY
WHEELING, WEST VIRGINIA

Atlanta
Louisville

Boston
Minneapolis

Buffalo
New Orleans

Chicago
New York

Columbus
Philadelphia

Detroit
Richmond

Kansas City
St. Louis



For greater safety under foot,
in your plant and on your products

Inland 4-Way Safety Plate[®]



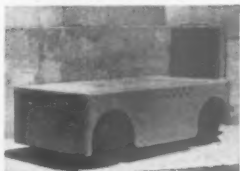
Safe Footing



Easy Cleaning



Firesafe



Adds Strength



INLAND STEEL COMPANY, Dept. NSN31
38 So. Dearborn St., Chicago 3, Ill.
Sales Offices: Chicago, Davenport, Detroit,
Indianapolis, Kansas City, Milwaukee, New
York, St. Louis and St. Paul.

**New Bulletin with New
Ideas—Just Out! Bulletin
Fl.** Complete engineering
and application data.
Send for it!

STOCKED BY LEADING STEEL WAREHOUSES

Portable Ladders

(From page 23)

Others' ladders should be provided with hooks at the top so the ladder may be securely fastened to overhead shafting.

Extension ladders should be equipped with two automatic locks. In the automatic lock the keeper is forced by a spring to grip properly and to seat under the rung. For metal parts, steel, malleable cast iron, or other equivalent metal specified by the Code should be used.

A rope hoist for raising the top section is one of the essentials of a good extension ladder. Lower guide irons, not found on many light-duty ladders, are required by the Code.

Stepladders are built in lengths from 4 to 20 feet.

For industrial use they should have side rails at least 25/32 inch (preferably one inch) by 3 3/4 inches, or 2 3/4 inches for stepladders less than 10 feet long. Treads or steps should not be less than 3 3/4 inches wide and should be truss-rodged or braced to the side rails with angle braces.

Stepladders should be constructed so that when they are in the open position the front section will have level treads.

Unstable ladders not only invite possible collapse or tipping, but the shaky support they give tends to make workmen nervous and thus more susceptible to accident.

To guard against pinching or bruising hands, the automatic locking device or spreader should have all sharp points removed or covered. The rungback type permits a helper to assist from the back of the ladder.

Platform or safety ladders offer a solid working platform guarded on three sides. They are of particular advantage on jobs at fixed heights where the work requires considerable freedom for the worker.

Safety ladders are usually built for heavier duty than the ordinary step-ladder.

Height to platform ranges from 3 to 18 feet, the over-all height in each case being 2 feet or more.

Trestle ladders of the "A" type (with a center section which slides up and down) are used in maintenance work. These ladders are commonly used in pairs with a stage between them or in sets of four with two stages and with planks from stage to stage.

Points to be considered in selecting extension trestles are guides of adequate length, strong locks of the sliding section, and a safety spreader.

Telescoping ladders are mounted on rubber tired ball-bearing wheels with floor locks. Maximum height of working platform is 15 feet. When down, it will go through an ordinary door or into an elevator.



No waste in cutting
skid-resistant

U-S-S MULTIGRIP FLOOR PLATE

● The symmetrical design of U-S-S Multigrip Floor Plate minimizes waste in cutting, making possible neat installations at minimum cost. And regardless of the way the plate is laid or the angle from which it is approached, Multigrip provides positive skid resistance in all directions . . . it's safe, wet or dry! Multigrip is easy to clean, too. There are no pockets to hold dirt, grease, water . . . drainage is complete and immediate.

Whether used on small step-plates of machinery or to cover entire factory floors, Multigrip installations are neat, comfortable underfoot, economical to maintain, permanent . . . and safe. Get further information about Multigrip from your nearest steel warehouse or write to us direct.

Columbia Steel Company, San Francisco
Tennessee Coal, Iron & Railroad Company, Birmingham
United States Steel Company, Pittsburgh
United States Steel Supply Company
Warehouse Distributors, Coast-to-Coast
United States Steel Export Company, New York



MULTIGRIP FLOOR PLATE

UNITED STATES STEEL

Telescoping towers reach still greater heights. These portable units can be extended up to 49 feet. The man on the platform controls the travel through an electric push-button system. Another push-button control is located on the frame below but the man above can lock the platform in place by pressing a safety button. Outriggers give stability.

Chain and rope ladders are designed for emergency use as a means of escape in case of fire or explosion, and for rescue work where rigid ladders cannot be used. These are not a substitute for permanent fire escapes.

Crow's Nest Ladders. For many outdoor maintenance jobs the "Crow's nest" ladder mounted on a truck is used. It is an extension platform ladder, securely mounted on the vehicle, which can be rotated in a complete circle and elevated at various angles from 45 to 72 degrees from the vertical.

This device permits working over parked vehicles and is used for such jobs as tree trimming, servicing street lights, police and fire alarm signals, inspecting overhead lines, connecting house services, and general emergency work. It can be lowered into compact form for traveling.

Ladder Shoes

Whenever a portable ladder is used on anything but dry ground, there is always danger of the feet slipping. To overcome this hazard, several types of ladder shoes have been devised. In general, they grip the surface either by sharp points or by friction.

One type of sharp point is the metal spike; another is the abrasive shoe. The friction type includes those shoes which depend upon frictional resistance for the gripping qualities, such as cork, lead, and rubber or composition with interwoven cord.

Another type made of cotton asbestos material and interwoven wire combines the two principles. Suction cups are used in still another type.

Ladder shoes become less effective

Keep Your Ladders Safe

1. Inspect every ladder as soon as received.
2. Set up a routine for regular and thorough inspection.
3. Keep a record for each ladder. It should include:
 - a. Date purchased or built.
 - b. Date of inspections.
 - c. Condition and needed repairs.
 - d. Dates for next inspection and recoating.
4. Records may be supplemented by stenciling on ladder a date to indicate when next inspection is due.
5. Instruct men to observe safe practices and to report any defects in ladders.

melflex

MATS

SURE-GRIP SAFETY

for All Standing or Walking Surfaces



TO MEET ALL INDUSTRIAL NEEDS

Frictioned-rubber link mats for areas where heavy duty service demands greatest durability with maximum SAFETY . . . Full half-inch thick with links woven on special rust-resisting steel wire, they can be made to your specifications to fit any rectangular safety-surfacing requirement. Their sure-gripping cushion reduces leg fatigue, helps increase efficiency of workers at machines and benches . . . Molded rubber scraper type mats made to standard sizes for entrances and standing workers.

Heavy Duty Ribbed Runners For Halls, Corridors, Locker Rooms . . .

Mel-Isle, high-ribbed rubber runner, in light, medium or heavy gauge is self-cleaning, long wearing and SAFE for walking, wet or dry . . . Perfect surfacing for halls, corridors, locker-rooms, aisles where sure-footed movement is essential at all times.

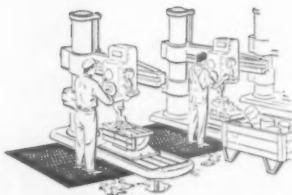
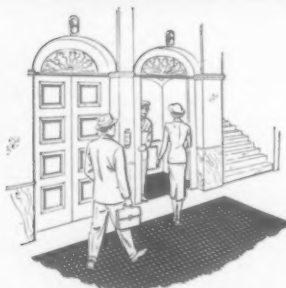
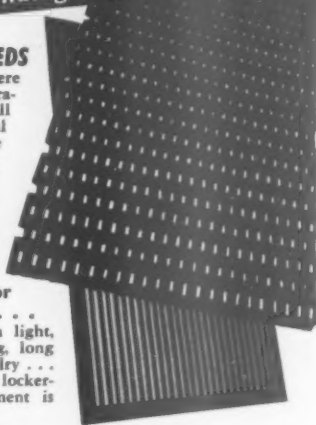
Write for catalog and prices today.

MELFLEX PRODUCTS COMPANY, Inc.

L. E. WARFORD, President

410 S. Broadway, Akron 8, Ohio

In Canada: 206 N. May St., Fort William, Ont.



CLEAN UP WITH SAFETY-TREAD MATS

DURABLE Safety-Tread mats trap dirt under the mat surface, thus simplifying the housekeeping problems of plant traffic and work areas. The fatigue relieving rubber and Safety-Tread improve production — prevent slipping and sliding—cut accidents to a minimum.

DURABLE has the **RIGHT** easy-to-clean,

safety mat for every requirement . . . colorful patterns for entrances and lobbies and tough, long life Tirelink mats for all types of plant installations.

Get the complete facts from "MATTY the Mat Man."

DURABLE

MAT COMPANY

75 N. Pleasant St.
Norwalk, Ohio

2926 Sixteenth St., S.W.
Seattle 4, Wash.



Dear Matty:—

Please tell us how **DURABLE MATS** can help keep our plant clean and safe.

NSN

through wear, especially when exposed to oil and grease on the floor. Consequently, they should be inspected regularly.

Ladder Maintenance

Inspection. Among things to look for are: Loose rungs or steps; screws, bolts and other metal parts broken or missing; cracked, or broken uprights, braces, steps or rungs; slivers; worn or damaged shoes.

All ladders found defective should be marked and taken out of service and not used until defects have been corrected. If beyond repair they should be destroyed promptly.

Records of the condition of all ladders should be kept.

Storage. Ladders should not be stored where they will be exposed to weather, nor near radiators, stoves or steam pipes.

Protective coatings. Two coats of linseed oil or spar varnish will increase resistance to weathering.

Paint as a protective coating is now approved by the ASA Code, provided the ladders are inspected before painting by experienced inspectors acting for and responsible to the purchaser and the ladders are not for resale.

Wood preservatives, which consist of toxic chemicals in non-aqueous solution, prolong the life of wood exposed to weather or in contact with the ground. They offer special protection at the joints of rung holes and tenons. Some of these preservatives do not interfere with subsequent painting and varnishings.

Color

(From page 16)

hazardous parts of machines or electrical equipment, such as exposed cutting edges, the inside of removable guards, and doors and covers to switch boxes.

2. Blue on signs is suggested to designate caution against starting or moving machines being worked upon. Signs would be located at the starting or power sources of elevators, electrical controls, valves, tanks, and similar equipment.

3. Purple is suggested to identify radiation hazards, such as radioactive materials in rooms and containers. Yellow is to be used with purple for tags, signs, and similar means of identification.

Identification of Piping

The American Standards Association's Code Scheme for the Identification of Piping Systems likewise recommends the basic colors of red, yellow, etc., in a simplified plan for piping systems. The code does not apply to pipes buried in the ground, pipes used in electric conduits, or piping which carries solids either in gas or air. Contents of pipes are classified as follows:

Classification	Color
Fire protection	Red
Dangerous	Orange or

Safe	Green
Protection materials	Bright blue
Valuable materials	Purple

The color may be applied the entire length of the pipe or in bands 8 inches to 10 inches wide near valves, pumps, and at repeated intervals along the line. The name of the specific material is stenciled in black at readily visible locations at valves, pumps, and similar places.

Color stripes painted at the edges of the color bands may also be used to identify the exact contents of lines, but this method is less satisfactory than use of stenciled identifications. Labels for marking piping, which conform in color and size of letter to the code, are on the market.

Acids and alkalis cause many paints to change color. Therefore, paints exposed to moisture and chemical action should be carefully selected.

The use of color markings is a supplement rather than a substitute for adequate guards or other safety measures.

Types of Paint

Paints, enamels and lacquers provide a medium for the practical application of color. Industrial finishes are often subject to severe exposures and many types of paint have been developed for special needs.

Floor coatings. Synthetic enamels and rubber base floor coatings give better service on concrete than ordinary floor enamels and are more resistant to moisture, acids and alkalis.

Light-colored floors conserve light. They may be stippled with darker colors to avoid glaring contrasts.

Water-thinned paints. Cold water paints (casein and synthetic resin types) are lower in price than oil paints and satisfactory for some industrial interiors. They can be applied with spray-coating equipment. They are washable but less durable than other type of paint.

Luminous paint. is made in both fluorescent and phosphorescent varieties. During the war it was used for markings in blackout installations, it offers numerous possibilities as a safety measure where lighting failures and other emergency situations might create hazards.

Traffic marking. White is preferred for inside traffic markers. It has been accepted for highway traffic and many paint manufacturers produce a paint known as "traffic marker white." White stands out better than yellow in dim light.

Wood preservatives. When wood is in contact with the ground or with masonry, preservatives prolong its life. For power and telephone line

37 FALLING ACCIDENTS



WILL ONE OF YOUR MEN BE NEXT?

Every hour, falling accidents kill or disable 37 workmen!*

Are you sure your men are safe from unsafe footing?

You can give your workmen maximum protection against costly slipping and falling accidents with A. W. ALGRIP Abrasive Rolled Steel Floor Plate. ALGRIP is made by rolling tough abrasive grain as an integral part of the upper portion of steel floor plate. Wet or dry ALGRIP gives non-slip protection even on steep inclines. Wear only exposes new abrasive particles so maintenance is not required.

Engineers, architects, purchasing agents, and safety engineers are specifying A. W. ALGRIP for thousands of industrial and commercial applications. Follow their lead. Get more information now. Write for booklet B-13.

THERE'S NEVER A SLIP
ON A.W. ALGRIP

Magnification shows even distribution of abrasive grain in A.W. ALGRIP.

Even on steep inclines A.W. ALGRIP IS NON-SLIP!

A.W. ALGRIP ALAN WOOD STEEL COMPANY

CONSHOHOCKEN, PA.

125 Years of Iron and Steel Making Experience

Gentlemen:

Please send me your 8-page information-packed booklet B-13.

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

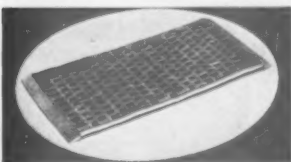
Other Products: PERMACLAD Stainless Clad Steel • A.W. SUPER DIAMOND Floor Plate
Plates • Sheets • Strip • Alloy and Special Grades

*17% of the 222 occupational injuries which occur every hour are due to falls. Source: National Safety Council's 1949 edition of Accident Facts.



Fix things quickly by installing

TUF-TRED SAFETY MATTING



Quiet and comfortable to walk on. Retards fatigue. Reduces breakage. A highly popular, low priced, superior grade of rubber fabric matting and the only one equipped with non-trip beveled safety nosing on the ends. Links strongly laced on galvanized, rust-resisting steel wire, reinforced by metal plates. Thickness $\frac{5}{8}$ ". Width: up to 6 feet. Any length.

Consult your telephone directory for American Mat office or write us direct.

WANTED! Distributors and direct factory representatives!

AMERICAN MAT CORPORATION

"America's Largest Matting Specialists"

1724 Adams Street Toledo 2, Ohio

() Please send prices on Tuf-Tred Superior Grade Corded Rubber Fabric Link Matting. () Please send information on Ezy-Rug Rubber Link Matting. () American Counter-Tred Safety Matting. () Traffic-Tred Matting. () Do-All All-Purpose Rubber and Cord Matting. () Vinyl Plastic Link Matting.

Name _____

Firm _____

Street _____

City & State _____

IN CANADA

OFFICES: American Mat Corporation, Ltd.
Canada Trust Building
Windsor, Ontario

FACTORY: West Lorne, Ontario

poles creosote is widely used. Where the surface must be painted, NSP (non swelling and paintable) preservatives are available. These consist of toxic chemicals in a non-aqueous solution.

Rust prevention. Some paints are effective in protecting metal. However, when rust has started, ordinary paint is of little use since corrosion will continue under the paint film. Rust-sealing coatings, both clear and pigmented, are helpful under some conditions.

Housekeeping

(From page 20)

mon brick, wood block and mastic. For marble and smooth tile a cleaning powder that does not leave a slippery residue should be used.

Strong alkalis and coarse abrasives are injurious to many types of floors, and usually milder cleaners will be effective.

Oil absorbents. Around machines and other places where oil and grease accumulate, hazardous and unsightly conditions develop. Oil spills should be swept up promptly, and the use of a non-combustible absorbent compound makes it easier to keep floors clean.

Absorbents are available in two types—one for oils and grease; the other an all-purpose absorbent where



Prompt use of absorbent compounds on oil and grease spills avoids slipping hazards and makes floor easier to clean.

water and other liquids are present. They are much more satisfactory than sawdust, waste or rags.

Tests by Underwriters' Laboratories have rated the effectiveness of these compounds in absorbing oil and grease and from the standpoint of fire safety. They are not subject to spontaneous heating unless the absorbed oil has that quality.

Oil-soaked garments, shoes, ropes and belts can be dry cleaned by burying in the compound.

Used absorbents may be used as sweeping compounds where the absorbed oil will not be injurious to the surface.

—To page 34

MAGCOA LIGHTWEIGHT MAGNESIUM

RAMP-DOCKBOARDS

...are flexible for greater freight-loading efficiency

Beveled edges minimize jarring of load

Ramp and Dockboard lock together with simple pin device

Hand holds in each corner for safe, easy handling

Special quarter round curbs prevent runoffs—offer maximum clearance for equipment

Rounded curb ends allow greater turning radius

MAGNESIUM COMPANY OF AMERICA
EAST CHICAGO, INDIANA

A combination of two sections—the ramp (with I-beam legs), and the Dockboard. Each lightweight magnesium unit can be handled safely and easily by one person. Dockboard is used as separate unit when height difference is less than fixed height of ramp. When greater height differences are encountered, the ramp and Dockboard combination is used.

Specially designed for applications where low-clearance loading equipment is used. Weighs only $\frac{1}{4}$ as much as steel ramps of equal size and strength. A modern answer to materials handling headaches in all industrial and commercial fields. Write for complete details today!

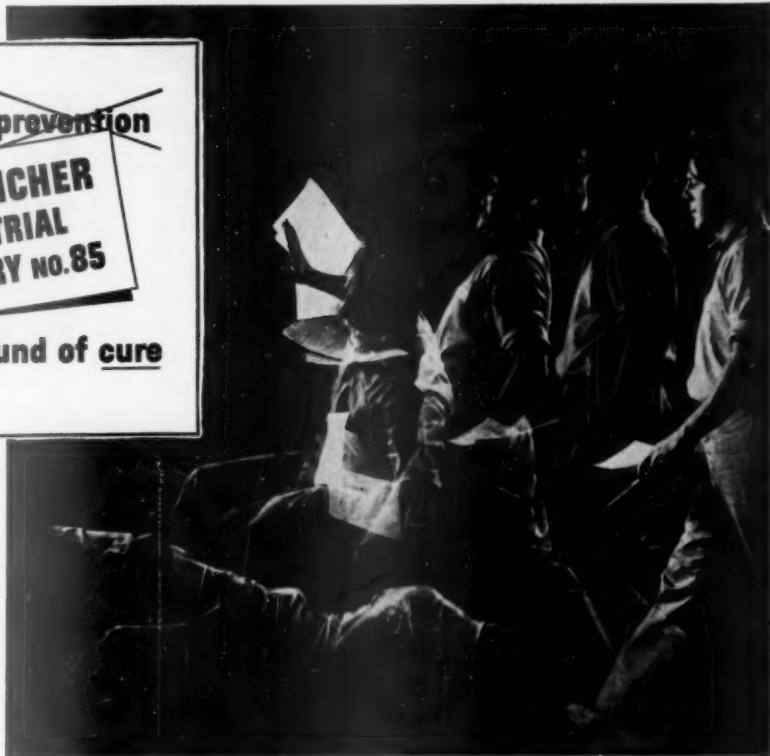
Representatives in All Principal Cities
DIVISION OFFICES

30 Rockefeller Plaza, New York 20 Russ Bldg., San Francisco 4 7657 Moline St., Houston 8922 W. 25th St., Los Angeles

An ounce of prevention

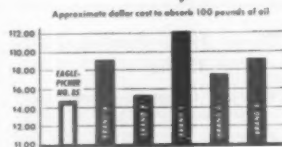
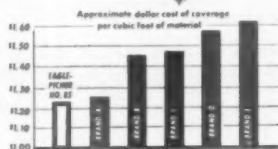
**EAGLE-PICHER
INDUSTRIAL
FLOOR DRY No. 85**

is worth a pound of cure



***Eagle-Picher Industrial Floor Dry No. 85
is tops for efficiency and economy!***

Eagle-Picher's remarkable new Industrial Floor Dry No. 85 is a granular mineral compound having tremendously high absorptive properties for oil, grease, kerosene, water and other liquids. Chemically inert, and non-combustible, it is insoluble in such liquids. Its light weight provides highest possible floor coverage, and it may be easily applied by hand, shovel or mechanically. It retains its granular form even when saturated with liquids, and retains its effectiveness for longer periods. Examine the results of comparative tests of Eagle-Picher Floor Dry against five other leading compounds. Or better yet, try it in your own plant—you'll get more for each dollar spent!



The Eagle-Picher Company

Since 1843

GENERAL OFFICES: CINCINNATI (1), OHIO



THE EAGLE-PICHER COMPANY

Dept. NS-3, Cincinnati (1), Ohio

Gentlemen: Please send me more information about Eagle-Picher Industrial Floor Dry No. 85.

Name

Address

City Zone State



SAM IS ABOUT TO

STRIKE OIL

Slipping accidents will happen — unless a regular program of prevention is enforced. You can carry out such a program, quickly and at low cost, with Wyandotte Zorball®.

Zorball is the all-purpose floor absorbent that gives an immediate anti-skid surface to stained and soaked floors. It absorbs oil, water, paint, acids and other liquids that contribute to dangerous floor conditions. Slipping and fire hazards can then be literally "swept away."

Zorball is nonflammable. Even when saturated with oil, it resists burning. It will not break down and form "mud," either. It's harmless to fabrics, wood, metals, rubber and to the skin of those who handle it.

Safety calls for Zorball. Why not call your nearest Wyandotte Representative for details?

* Wyandotte Zorball is listed by Underwriters' Laboratories, Inc.

THE WYANDOTTE LINE—all-purpose floor absorbent: Zorball; **floor wax:** Anti-Slip Wax; **germicides:** Steri-Chlor, Spartec; **maintenance cleaners:** Detergent, F-100, El-Bee, Paydet; **detergent-sanitizers:** Tri-Boc, Kromet—in fact, specialized products for every cleaning need.

WYANDOTTE CHEMICALS CORPORATION
WYANDOTTE, MICHIGAN
SERVICE REPRESENTATIVES IN 88 CITIES



Housekeeping

(From page 32)



Portable vacuum cleaner for factory and office use. (Huntington Laboratories)

Disinfectants and deodorants are often useful, particularly around washrooms and garbage cans. They are not a substitute for thorough cleaning with soap and detergents.

Odors may originate in the materials being processed or they may be due to unsanitary conditions. They may not be toxic, but they cause discontent and often labor turnover. Every attempt should be made to remove them at the source but a deodorant may be needed at times.

Sweeping compounds are helpful in keeping down the dust where hand sweeping is used. The combustibility of the compound should be noted for some locations.

Paint. A fresh coat of paint is a tonic to any plant and an aid to morale and housekeeping. Lighting is improved and there is more incentive to keep the place clean.

On machinery light colored enamels have been found practical. They give the operator a better view of his work and encourage more careful maintenance of the machines.

These Make Housekeeping Easier . . .

Vacuum Cleaner—Heavy duty with attachments
Floor machine—Sizes types and attachments for every plant
Brooms, brushes and mops
Cheeccloth
Rubber gloves
Bowl and urinal swabs
Soap and detergents
Disinfectants and deodorants
Wax—Suitable for type of floor

JOHNSON'S**makes floors safe
for handicapped
children!**

Proved safe!... even for handicapped children. After a rigid test, Milwaukee's Curative Workshop writes: "Shur-tred has met our need of a non-skid surface on which our paralyzed patients may safely have walking training."

Positively reduces slip hazards! Johnson's Shur-tred has been thoroughly tested on all types of floors, including asphalt tile, terrazzo and marble... under all conditions of temperature, humidity, maintenance! In hospitals... school areas... office buildings... manufacturing plants. In every instance *Shur-tred* put an end to slip complaints!



**MAIL COUPON TODAY
FOR FREE SHUR-TRED
DEMONSTRATION**

**Requires no change
in maintenance!** No change in your floor maintenance program is necessary when you use Johnson's Shur-tred. You damp-mop and polish on the same schedule and in the same way you would with any ordinary *self polishing* floor finish!

**No other Safety Finish offers this
combination of features!**

- ★ *not tacky* ★ *not gritty* ★ *brightest shine*
- ★ *toughness* ★ *wet-mop-proof* ★ *full protection*
- ★ *easy application* ★ *quick drying*

S. C. Johnson & Son, Inc.
Maintenance Products—Dept. N3
Racine, Wisconsin

- ☐ Please arrange for a Shur-tred demonstration.
I understand this does not obligate me in any way.
- ☐ Send me all the facts about Shur-tred.
- ☐ Send free manual "How to Care for Your Floors."

Name _____ Title _____

Institution _____

Address _____

City _____ Zone _____ State _____

"Johnson's" and "Shur-tred" are trademarks of S. C. Johnson & Son, Inc.



America's Largest Selling Oil and Grease Absorbent!

SOL-SPEEDI-DRI

SOL-SPEEDI-DRI is the sales leader in the oil and grease absorbent field. Always has been. It makes floors safe for walking, safe for working. Tests conducted by independent laboratories, by large national users, and by ourselves all come out the same—pound for pound, dollar for dollar, SOL-SPEEDI-DRI gives you *more for your money*, all factors considered. Send the coupon for free sample today. Make your own comparisons. Then you, too, will standardize on SOL-SPEEDI-DRI!

SPEEDI-DRI CORP., 210 W. Washington Sq., Phila. 5, Pa.



Warehouse stocks maintained in principal cities of the United States and Canada.

Inquirers in New York, New England, and New Jersey should write to Speedi-Dri Corp. Elsewhere in U.S. to Waverly Petroleum Products Co., 1724 Chestnut St., Phila. 3, Pa.

FREE SAMPLE: Fill out the coupon and mail today for big, free sample.

Name _____
Address _____
City _____ State _____

NSN 2-51

Floors

(From page 22)

It is used for offices, laboratories and workrooms which must be kept particularly clean. Since it may become slippery when polished the type of finish is particularly important.

Asphalt tile is also suitable for offices and stores. It is moisture resistant but susceptible to indentation and oil. It is non-slippery in its natural state but may become slippery when highly polished.

Rubber is used extensively because of its resiliency and high dielectric strength. It is affected by oils and solvents. Rubber with abrasive imbedded in the surface is used for stair treads, elevator sills, thresholds, etc.

Wood block has many of the essentials of a good, general purpose, heavy service floor. It is not likely to crack, become slippery or cause fatigue. It is comparatively noiseless. Individual blocks can be replaced easily.

Blocks should be set in high melting point pitch, since ordinary pitch or tar filler may stick to wheels and shoes in hot weather. Wood blocks laid in mastic do not require pitch or tar filler.

Wood plank. Hard, close-grained wood provides a floor that is comfortable under foot and reasonably durable under foot traffic. Under moist conditions, boards have a tendency to swell and buckle. A heavy sub floor enables the surface flooring to withstand moisture and traffic. Under heavy wheel traffic, boards may loosen or break frequently, causing hazardous conditions and excessive maintenance.

Fabric surfacing. Heavy fabric coated with mineral grains is used indoors and out for stair treads, ramps and around machines. The ma-

—To page 38



American Type Founders Co.

National Safety News, March, 1951



Are you being short-changed? Get all 3 with the LEGGE SYSTEM of Safety Floor Maintenance

• Safety • Appearance • Economy

Don't be a "fall guy" for floor maintenance costs. You need the "Safety" factor of Legge Anti-Slip Floor Polishes and Cleaners. The Legge system reduces slip-and-fall accidents up to 95%.

You need the "Appearance" factor which Legge materials give your floors. Do we have to stress the importance of appearance in business?

You need the "Economy" factor inherent in the low-cost Legge upkeep and the careful training of your crews by Legge Safety Engineers. Do yourself a favor. Write or telephone for a Legge Man today.

LEGGE SAFETY FLOOR CLEANERS

TEXINOL: For all surfaces which cannot be harmed by water. A heavy duty, oil-purpose concentrate in jelly and liquid form. Commercially neutral. A small quantity in a pail of water softens and loosens dirt. Cleans thoroughly, economically without leaving slip-perry, soapy film on floors.

CLEANER #1: For accumulations of dirt and wax. This primary cleaner is designed for robust scrubbing prior to polishing. A concentrated paste compound, it is commercially neutral. Cannot mar surface or bleach color.

TEXSPAR: For difficult cleaning jobs. A high-powered scrubbing compound that accomplishes the toughest cleaning tasks where all

other known cleaners fail. Used to remove obstinate accumulations of old wax, soap film and ground-in dirt. A commercially neutral paste.

TRAFICO CLEANER: For preparing floors to be polished with TRAFICO. This slip-resistant solvent is applied to floor and scrubbed with steel wool to loosen dirt, old wax and burn marks. Contains some polish.

SPIRICO CLEANER: For preparing floors to be polished with SPIRICO. A slip-resistant solvent used in the same manner as TRAFICO CLEANER.

LEGGE SAFETY FLOOR POLISHES

LECO: For linoleum, rubber, cork, linoleite, Mastipave, Karoseal, resilient floors. This Safety, water-emulsion polish maintains highest slip-resistant qualities despite its attractive gloss. Protects floor with a durable film. To cope with extreme slip-hazard conditions, LECO's coefficient of friction can be easily increased.

SAFCO: For asphalt tile floors. Similar to LECO, although this Safety, water-emulsion polish gives higher slip-resistance to the harder surface of asphalt tile floors. When going over worn polished areas, either LECO or SAFCO can be diluted. For best results, apply with a mop.

TRAFICO: For resilient floors such as wood, cork and linoleum. Do not use on rubber or asphalt tile. Created to withstand abuse.

(All Legge polishes are listed by Re-examination service of Underwriters' Laboratories.)

its tough-wearing qualities make it ideal for heavily trafficked floors. A solvent type polish, TRAFICO gives a durable, glossy, slip-resistant surface. For touch-up maintenance its solvent action makes it practical for use as combination cleaner and polish.

SPIRICO: For wood floors. A spirit polish that buffs to a smooth, slip-resistant sheen. Dust resistant. Provides an unusually high safety factor.

FLOOR-SHINE: For terrazzo, marble, travertine, quarry, tile, and other hard-surface floors. A two-in-one treatment that cleans and gives a slip-resistant polish at the same time. Applied by diluting gives a slip-resistant polish at the same time. Also effective as secondary maintenance in water and mopping. Also effective as secondary maintenance for floors polished with LECO, SAFCO, TRAFICO or SPIRICO.

LEGGE FLOOR SEALS

CEMENT SEAL: For closing the pores of cement floors. A penetrant that seals cement floors against absorption of foreign matters. Prevents dusting.

KOLORCO: For sealing and surfacing. Provides a protective finish in color for concrete, magnesite, wood and other floors. Eliminates problems of excessive wear and the need for frequent repainting. Applied with paint brush or applicator. Available in wide range of colors.

TERRAZZO SEAL: For terrazzo and other hard-surfaced floors. A penetrant that seals floor against penetration of dirt and foreign matters. Accentuates true coloring.

WOOD SEAL: For fine wood and gymnasium floors. An effective weapon against dirt and foreign matter, this durable seal and surfacer protects floors against deterioration.

LEGGE PROTECTIVE PRODUCTS

CONDUCTOTE: For conductive safety. Painted on floor over a thin copper grid, this seamless, plastic-like composition produces a conductive walking surface. Eliminates the hazard of explosions by dispersing static. Dries to a long wearing, easy to clean finish. Listed by Underwriters' Laboratories.

GRIPTEX: For slip-resistant footing on floors made slippery by temporary wet or oily conditions. GRIPTEX is an abrasive powder sprinkled on lobby, vestibule and kitchen floors, on landing platforms or around machinery in factories. Also useful in stores, restaurants, public buildings. Tiny abrasive particles cut through spillage. Does not scratch floors.

GUMROCK: For safe footing on wood, metal or concrete surfaces. A slip-resistant plastic-like paste applied to surfaces at all slip hazard points. Used on factory floors, stair treads, ramps, around

machines. Applied with a screed, trowel or brush to 1/16" thickness. Dries to a tough abrasive surface. Bites through spillage of oil, grease, water. Resists most acids. In colors—red, brown, black or green.

LEGGE SAFETY EQUIPMENT

CLOCLAMP: For damp sweeping. Here is a lightweight one-piece cleaning mechanism designed for thorough, yet easy, damp sweeping. Fits over broom handle, holding dampened cloth in place under broom. During sweeping, CLOCLAMP is periodically raised so that sweeping surface of cloth is always clean. Removes dirt and grime which defy dry sweeping. CLOCLAMP cloth available in 26" x 36" and 40" x 36". Both sides of cloth usable. Withstands repeated washings.

DAMP SWEEP TOOL: For effective damp sweeping. A maintenance implement designed to speed up damp sweeping of floors. 20" brush and 5' handle are connected by a universal joint. 40" square sweeping cloth has taped hole at center. Maneuverable. Easily removes fine grit from floors.

LEGGE SUPERIOR FLOOR POLISHING AND SCRUBBING MACHINE

MACHINE: For polishing all floors. This is an alloy steel wheel-type driving unit combining high speed with outstanding polishing and scrubbing performance. Accurately balanced to give even finish on any type flooring. Operates with minimum of noise. Timken Roller bearings. Waterproof. Unconditional 5 year guarantee, if properly lubricated.

NOSTAT: For protection of personnel against static charges. NOSTAT is a grounding device worn on the leg and shoe to insure drainage of static currents from the body to a conductive floor. A leg garter makes contact with the skin. Connecting lead-chain carries currents to floor contact button clipped on shoe. Maintains electrical skin-to-floor contact.

WALTER G. LEGGE Co. Inc., 101 Park Ave., New York 17, N. Y.

Dept. N-3



FRANKLIN'S...
THE WAX THAT HAS EVERYTHING!

IT'S TOUGH • HIGHER WAX CONTENT • IT'S TOUGH

FRANKLIN'S
"TWENTY-ONE"
WAX
For HEAVY TRAFFIC
AND PROBLEM Floors
FRANKLIN RESEARCH COMPANY - PHILA., PA.

FOR FLOORS
ANTI-SLIP
HIGH GLOSS
WATER RESISTANT
WEARS LONGER
NO RUBBING

FRANKLIN'S
RUBBER GLOSS
WAX
FRANKLIN RESEARCH COMPANY - PHILA., PA.

HIGH GLOSS...WATER RESISTANT...LONG WEARING...*Safe!*

Floors

(From page 36)

terial can be applied to concrete, metal or wood. It comes backed with adhesive which adheres to the surface under pressure. It wears well and is resistant to water, oil and weather.

Steel plates are easily assembled and are serviceable for platforms, stair treads, floors, hatchways. They wear well and are easily cleaned but are highly conductive of heat and are noisy.

The plates are made with checkered extruded patterns which offer good traction and resistance to slipping. When worn, plates can be roughened with a welding torch.

Steel plates are also used over ducts which carry electric circuits or pipe lines. They can be removed easily for servicing equipment underneath.

Abrasive metal plates are used for thresholds, elevator sills, stair treads, and other locations where a durable, non-slip surface is essential. These plates with abrasive particles incorporated in the surface are available in both steel and non-ferrous metals.

Conductive floors are important in the control of static electricity where explosives are manufactured or where flammable gases, dusts and vapors may form explosive mixtures. Conductive floors ground static electricity and stray currents.

Types of conductive flooring include lead, spark-proof mastic, magnesium oxychloride, conductive linoleum, conductive asphalt tile and conductive rubber.

Floor mats often reduce slipping hazards and provide a more comfortable footing on hard, cold or damp floors.

Mats are made of wood, rubber, neoprene, and vinyl plastic. Neoprene, with cord-on-end construction, is satisfactory where the mat is exposed to oil and grease.

Mats should preferably have beveled edges or be set flush with the floor.

Grating. Metal grating is often used for platforms, stair treads, catwalks, etc., both indoors and out. They provide good traction and sure footing, even when wet and greasy. They are practically self-cleaning since they do not retain dirt and snow. One familiar type uses twisted and slightly roughened bars in construction; another uses heavy expanded metal with cross grooves.

Dock plates (gang planks). These are used to bridge the gap between a box car or truck and a loading platform. They are made of wood, steel or light metals (magnesium or

32.3% GAIN
CAL-FLOR-DRY

Shipments for 1950 Show This Gain Over 1949

Economy, per area covered, and lb. of oil absorbed, wins and holds new users. Cal-Flor-Dry has wide application in industrial plants, especially metal fabricators. Its use lowers over-all costs.

Ask your Jobber Salesman, or write direct.

The FLOR-DRY Company

2318 WYCLIFF ST.
ST. PAUL 4, MINN.

CAL-FLOR-DRY
OIL GREASE AND WATER
ABSORBENT
BEST BY TEST
ABSORBS MORE—GOES FARTHER

THE FLOR-DRY CO.
ST. PAUL, MINN.
"A DRY FLOOR IS A SAFE FLOOR"

—To page 40



No Trick at all!

EASY TO USE...
Just put it on grease spots

ECONOMICAL...
Saves time - Saves labor

Ideal for:

- Restaurants • Taverns
- Machine Shops • Factories • Breweries
- Service Stations and Pits • Garages
- Repair Departments • Power Plants
- Kitchens and Food Plants • Elevator Pits

CHECK THESE ADVANTAGES

- 1 Reduces slipping hazards
- 2 Reduces fire hazards
- 3 Improves floor conditions
- 4 Reduces maintenance labor costs
- 5 Reduces insurance penalties
- 6 Improves working conditions
- 7 Permits safer, easier, faster walking on plant floors
- 8 Improves plant housekeeping

**DONT PUT IT OFF --
PUT IT ON!**



**AVOID
SLIPPING
ACCIDENTS**

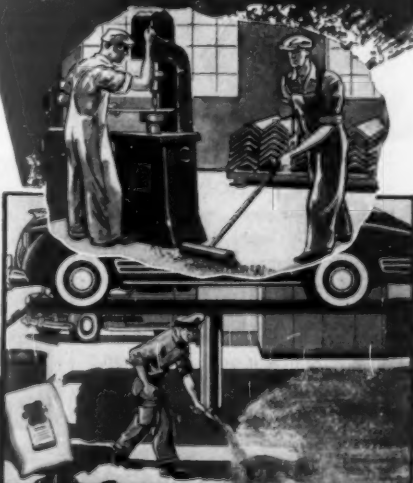
Oil-Dri

Absorbs all types of Oils,
Greases and Fats from Floors

Oil-Dri

ALL-PURPOSE

Absorbs all types of Oils, Greases and Fats plus
Water and Soluble Oil Solutions from Floors



Oil-Dri Corporation OF AMERICA 520 N. MICHIGAN AVE.
CHICAGO 11, ILLINOIS



Canfield OIL-SPUNJ

makes floors

- ★ Safe to Walk on!
- ★ Safe to Work on!
- ★ Safe From Flash Fires!



SPREAD ON THE FLOOR of a factory, machine shop, warehouse or garage, Oil-Spunj transforms a slippery, dangerous, fire hazard floor into a clean, non-skid floor . . . safe to walk on . . . safe to work on . . . safe from flash fires. Simply sprinkle it on . . . rub with broom . . . sweep it off.

Write us for samples and prices.

CANFIELD OIL COMPANY

General Offices: CLEVELAND 27, OHIO

Bulk and Package Plants: Cleveland, O.; Jersey City, N. J.; Memphis, Tenn.; Coraopolis, Pa.

Floors

(From page 38)

aluminum). A relatively thin steel plate provides great strength although heavy steel plates are hard to handle. Either steel or light metal plates designed for the operation are acceptable.

Anti-slip coatings. For maintaining a safe surface under foot, coatings which may be applied with brush or trowel are satisfactory for many locations. These are available in a variety of colors. Resistance to oil, solvents, dilute acids and other destructive agents is claimed for some coatings.

Maintenance. See Section 1, House-keeping.

Light for Seeing

(From page 15)

Fluorescent tubes are best suited for large areas and they should not be mounted too low.

Low surface brightness is one of the important qualities of fluorescent tubes but bare tubes are too bright for eye comfort. Reflectors with lowered bottoms or translucent panels improve diffusion and reduce glare.

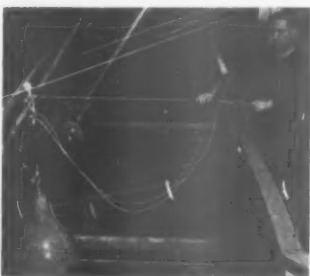
Mercury-vapor discharge lamps have high light output per watt, low operating cost and long life.

These lamps require auxiliary equipment which makes the initial cost higher. Restarting time is relatively long. Color of light is less pleasing than that from most other sources. These characteristics have limited their use.

For high bay mounting where work areas are large, mercury vapor lamps are frequently used. For rough work, as in steel mills and foundries, they may be used alone.

Where color discrimination is important, alternate fixtures of mercury and incandescent lamps are used.

Several types of mercury vapor lamps are available. The pressure at



A light pull on the rope brings any fixture to the catwalk where it can be cleaned and relamped quickly. Illumination is provided by 1000 watt incandescent lamps alternating with 400 watt high-pressure mercury vapor lamps mounted 65 feet above the floor. (Westinghouse)



Get DRI-RITE Protection

From Your Local Distributor

For further information contact

THE DRI-RITE COMPANY

(Water, oil and grease absorbents)

100 WEST CHICAGO AVE.
CHICAGO 10, ILL.

(In Canada: Safety Supply Co.—Halifax,
Montreal, Toronto, Winnipeg, Edmonton,
Vancouver)

PLASTIC ROCK means

Safe Floors

Here is protection

to limb and life—against injury and accident. Plastic Rock presents a uniform, non-skid surface WET or DRY . . . Protection also against fire, for Plastic Rock is spark-proof and flame-retardant. Its safety value has been proved for years in America's largest industries . . . Plastic Rock is dustless and noiseless; cannot splinter, crack, crumble, curl or loosen; is actually improved by heavy loads on steel wheels; adheres to wood, metal, concrete . . . Plastic Rock comes complete, packed and properly proportioned in barrels. Trowel on Saturday, use on Monday; no formulae to confuse; your contractor or maintenance crew can apply. Get our Report 220-S.

United Laboratories, Inc.

16807 Euclid Ave., Cleveland 12, O.

GET TRACTION-ACTION



WITH
FLOORSAFE

A NEW
ANTI-SLIP FLOOR
DRESSING...

REDUCES FALLS

FLOORSAFE

is not a wax

FLOORSAFE

is a new discovery

FLOORSAFE

is "everything" in one product

If you are technically inclined, you will be interested to know that FLOORSAFE brings you a brand new application of synthetic resins. Its high coefficient of friction gives it built-in **TRACTION-ACTION**.

FLOORSAFE with **TRACTION-ACTION** was developed, through years of research in the MYCO laboratories, to bring industry and business a new, higher standard of floor safety. It offers all these important benefits in one quick-drying, easy-to-use floor dressing:

• **SUPERIOR ANTI-SLIP PROPERTIES**

• **GLEAMING, MIRROR-GLOSS FINISH**

• **SCUFF-RESISTANCE AND LONGER WEAR**

• **LOWER FLOOR-MAINTENANCE COSTS**

Call or Write for our Free Pamphlet on Floorsafe

Other MYCO Products Listed

MYCO
PRODUCTS

in **BEST'S SAFETY DIRECTORY**

"MYCO means MORE for Your Money — More Value — More Service — More Satisfaction"

National Safety News, March, 1951

MASURY-YOUNG COMPANY

76 ROLAND STREET Dept. 16 BOSTON, MASS.

BRANCH OFFICES

NEW YORK
CHICAGO
LOS ANGELES
SAN FRANCISCO

11 West 42nd St.
10 South LaSalle St.
440 Seaton St.
465 California St.

JACKSONVILLE, FLA. P. O. Box 3412

KANSAS CITY
DETROIT
MINNEAPOLIS
PORTLAND, ORE.

990 Dierks Building
424 Book Building
253 Plymouth Building
2319 N. E. 8th Way

Make These Difficult Cleaning Jobs Simple! *Clean fast, Easily*

with

DIVERSEY ELEKTRO-PURJ-IT

**Multi-purpose
Cleaning Compound
Costs Less Than 2 cents a Gallon**

Now clean-up crews everywhere can make their job surprisingly easy, simple and fast! In literally thousands of plants throughout America, Diversey Elektro-Purj-It has proved its superiority over other general cleaners! Think of it! Elektro-Purj-It solutions actually cost less than 2 cents per gallon . . . yet loosen dirt and grease as fast as lightning and easier than you ever hoped possible!

Elektro-Purj-It is dustless and non-caking . . . convenient to use. Why not make your job easier? Investigate Elektro-Purj-It today. Mail the coupon below for free samples.

THE DIVERSEY CORPORATION

Maintenance Products Department
1820 Roscoe Street • Chicago 13, Illinois
IN CANADA: The Diversey Corporation (Canada) Ltd.
Lakeshore Road, Port Credit, Ontario

FREE SAMPLE! See for yourself how amazingly fast, easy and simple general cleaning really can be. Select a tough cleaning job in your plant and compare Elektro-Purj-It with any other cleaner. See the difference on one of your own cleaning problems! Mail this coupon for your free sample. No obligation.

Walls and Woodwork

Factory Reflectors

Wash Rooms

Machinery

Factory Floors

Sky Lights

DI-1

NAME _____
TITLE _____
COMPANY _____
STREET _____
CITY _____ STATE _____



Two floodlights on 18-foot tower provide light for night construction work or for emergencies. Current is supplied by gasoline-powered generator in trailer. Tower is folded over top of trailer for transportation. (American Bantam Car Company)

which the lamp operates accounts in large measure for the color of the light produced.

Reflectors. Lamps used without reflectors waste light and may cause uncomfortable or dangerous glare. Many types adapted to the light source and the location are available. Several factors should be considered in choosing the type of unit:

1. Distribution of light and suitability for the interior.
2. Efficiency of light output.
3. Sturdiness of construction.
4. Adaptability if more light is desired.
5. Economy of cleaning and replacement.

Natural Light

Whether to design a plant to make fullest use of natural light or to depend largely or wholly on artificial light, is primarily an economic problem. Safety is concerned more with the quantity and quality of light than with the source.

Side windows alone are inadequate for lighting extensive areas, even in bright daylight. Sawtooth, monitor or skylight windows take full advantage of natural light but add to the cost of construction and maintenance.

Glare may be subdued by glazing windows with refracting or diffusing glass which will alter the direction of light and improve its distribution, particularly to distant parts of the room.

Translucent coatings for windows on the sunny sides of buildings are also helpful in reducing glare.

Reflection of daylight from sources outside a building can often be uti-



Now--shiny, safe floors
all year 'round with - -

SUPER SAFE CETOX

Hydrooxated carnauba floor wax
- - It's all-weather-slip-proof!

Come rain or shine, radically new SUPER SAFE CETOX gives genuine security underfoot on dazzling, beautiful floors.

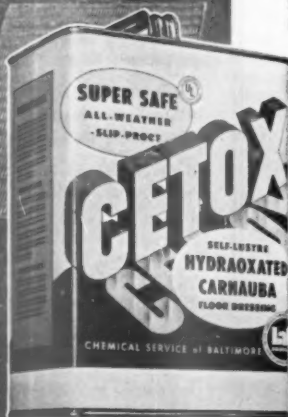
Super safe—even in inclement weather

Here's important protection all year long—especially throughout year's 30% inclement weather when the risk of slips and falls is greatest. Snow, sleet and rain tracked onto a waxed floor acts as a lubricant underfoot. SUPER SAFE CETOX ends this hazard. Foot traffic has solid, secure footing on a CETOX dressed floor . . . whether wetted or

dry. You can't slip on SUPER SAFE CETOX, because the slip is chemically hydrooxated out of the raw material carnauba. No silicas or abrasives added! It's super safe! Because it's hydrooxated!

More remarkable features

SUPER SAFE CETOX quickly dries into a smooth expanse of brilliant lustre. Self-lustre CETOX resists soil, wear, spilled water and frequent damp moppings. In every way CETOX is superior! Ask your distributor for SUPER SAFE CETOX today, or send us his name.



SUPER SAFE, RAIN OR SHINE

Listed anti-slip floor treatment material
by Underwriters' Laboratories, Inc.

Chemical Service of Baltimore

HOWARD & WEST STS. ★ BALTIMORE 30, MD.

lized. Light colors for faces of structures, walls of courts, and sawtooth roofs are helpful. These surfaces should be kept clean and free from sources of glare.

Sudden transition from bright to dim areas in a plant is hazardous. While the pupil of the eye is adjusting itself to the dimmer light there is a period of semi-blindness. Gradations of light at the approaches to areas of different intensity will avoid this trouble.

Special Lamps and Fixtures

Where lighting equipment is required for special uses or subjected to abnormal conditions, many types of lamps and fixtures are available.

Glow lamps are used as signal, pilot and night lights. They are not practical for general illumination.

Vibration-resisting lamps give greater service where ordinary lamps would have a short life because of excessive vibration.

Weather-resistant lamps are used for outdoor lighting in industrial plants, docks, athletic arenas, etc. They stand exposure to rain, sleet and snow without cracking.

Explosion-resistant fixtures are used where dusts, gases, fumes and vapors may create a hazardous atmosphere.

Infrared lamps, available in types and sizes up to 1000 watts, are used

for baking, drying and heating processes, as well as for therapeutic use.

Maintenance

Efficient lighting requires a systematic program of maintenance. Equipment may meet all requirements when installed but dust and grime immediately start reducing light output.

The recommended method of establishing a maintenance schedule is to check the illumination periodically with a light meter. When illumination has decreased to 75 per cent of its original value, the lighting equipment should be washed with warm water and a detergent containing no free alkali.

Group replacement of lamps, both incandescent and fluorescent, is often practicable and desirable. It is based on the assumption that the saving in cost of replacing a large number of lamps at one time is greater than the value of the remaining light output in the lamps. The point of replacement is usually 60 to 80 per cent of the rated lamp life.

Disconnecting hangers permit lowering fixtures to the ground or floor for cleaning, relamping and repairs. Much climbing is eliminated.

Emergency Lighting

In plants where failure of the power system might endanger life,

an emergency lighting system is desirable. In some states it is required under certain conditions.

For outdoor use it is often desirable to have searchlights, stationary or portable, which can be concentrated on critical areas when needed.

Portable systems mounted on trucks, can be moved to the scene of a fire or accident to aid fire fighting and rescue work.

Controlling Air-Borne Bacteria

Much research has been done in the search for methods of controlling air-borne bacteria. Ultra violet radiation and chemical bactericides have proved effective in destroying such bacteria, although practical methods of application impose certain difficulties.

Ultra violet radiation with low-pressure mercury lamps with ultra violet transmitting glass or quartz envelopes are effective in destroying microorganism. Application is by irradiating the upper air stratum of a room, beaming or screening to provide a narrow barrier of protective light, or inserting a radiation source in an air duct.

Effective radiations are dangerous to eyes and skin and lamps should not be in the range of vision.

Chemical bactericides are also effective, propylene glycol being the

Clean Grease-caked Floors Quickly!



THE KENT D-20 DRY SCRUBBER

Grease accumulations are no problem when the sturdy KENT D-20 Dry Scrubber tackles the impacted dirt on your plant floors. One man does the work of several when this dependable machine assists him—and does it better! For safety's sake, see what a KENT Dry Scrubber can do!

BRUSHES ARE SELF SHARPENING!

Five individual brushes rotate as a unit, maintain top cutting efficiency as they work!

KENT Dry Scrubbers
KENT Floor Machines
KENT Vacuum Cleaners for
Wet and Dry use

CLEAN WITH **KENT** EQUIPMENT

THE KENT COMPANY • 415 CANAL ST. • ROME, N. Y.

How to Cut Air Conditioning Maintenance Costs

TO HELP YOU get peak efficiency from your air conditioning equipment . . . cut operating costs, conserve water . . . we've prepared a 20-page booklet full of details, photographs, drawings of effective Oakite procedures for

- Cleaning lines, filters
- Quick, safe descaling
- Preventing slime and scale

FREE Booklet 7383 sent on request. Write today.

OAKITE PRODUCTS, INC.
140 Thomas Street, NEW YORK 6, N. Y.
Technical Service Representatives Located in
Principal Cities of United States and Canada

OAKITE

SPECIALIZED INDUSTRIAL CLEANING
MATERIALS • METHODS • SERVICE

Everything
FINNELL
for Floor Care

FLOOR-MAINTENANCE EQUIPMENT

For Every Type of Floor Care

ALSO A FULL LINE OF CLEANSERS, SEALERS, AND WAXES



COMBINATION SCRUBBER-VAC MACHINES

No. 213P

For large-area, heavy duty scrubbing. Applies the cleanser, scrubs, rinses, and picks up (damp-dries the floor) in one operation. Cleans up to 8,750 sq. ft. per hour! Self-propelled. Total brush spread, 26'.



No. 418P

For small-area buildings with 2,000 to 15,000 sq. ft. of floor. Like the 213P, handles four operations in one (vacuum performs quietly). Cuts cleaning time 2/3! Also can be used for dry work—polishing, etc. 18' brush ring.



CONVENTIONAL POLISHING-SCRUBBING MACHINES

100 Series, 3 Sizes

A general-purpose machine for average duty. The larger sizes can be reduced to smaller units. Low, trailer-type. G. E. Motors and Timken Bearings as in all Finnell electric machines. Noiseless. 13, 15, and 18'.



600 Series, 4 Sizes

A general-purpose machine for heavy duty. Has 2-way speed reduction (extra protection for motor and gears) . . . safety switch. The machine is self-propelled . . . noiseless. 13, 15, and 21'.

From the complete Finnell line, you can choose *exactly* the equipment and supplies you need for most effectual, low-cost floor care. And you can choose with *confidence*—nearly half a century of manufacturing *know-how* goes into Finnell products. Finnell makes a score of floor-maintenance machines . . . also a full line of fast-acting cleansers specially developed for machine-scrubbing . . . sealers and waxes of every requisite type . . . mop trucks, mops, vacuum cleaners for wet and dry pickup, applicators for sealers and waxes, steel-wool pads, and other accessory equipment.



ACCESSORY EQUIPMENT AND SETOL CLEANSER

No. 2R Mop Truck

Streamlined for greater clearance. Conserves storage space. Two 28-gal. tanks. Galvanized (No. 2R) or stainless steel (No. 2RS).

No. 10A Vacuum

For heavy duty wet and dry pickup. 12-gal. container. Finish: inside, Vynilite; outside, baked enamel. 7/8 hp. AC-DC motor.

Setol Cleanser

A mineral oil solvent for machine-scrubbing. Emulsifies grimy oil and grease *instantaneously*. Cuts operating time of machine.

Finnell Machines can be Leased or Purchased. Leasing budgets cleaning expense. It's also good to know that when you choose *Finnell Equipment*, a Finnell man is readily available to help train your maintenance operators in its proper use. For consultation, demonstration, or literature, phone or write nearest *Finnell Branch* or *Finnell System*, Inc., 2203 East Street, Elkhart, Indiana.

Branch Offices

AKRON 1, OHIO
ALBANY, N. Y.
ATLANTA 1, GA.
BALTIMORE 2, MD.
BOSTON 16, MASS.
BUFFALO 21, N. Y.
CHICAGO 6, ILL.
CINCINNATI 21, OHIO
CLEVELAND 18, OHIO

COLUMBUS, OHIO
DALLAS 5, TEXAS
DETROIT 28, MICH.
FT. LAUDERDALE, FLA.
FT. WAYNE, IND.
FREMONT, OHIO
GREENVILLE, S. C.
HANNIBAL, MO.
HARTFORD 2, CONN.

HOUSTON 5, TEXAS
INDIANAPOLIS 18, IND.
KANSAS CITY 6, MO.
LOS ANGELES 6, CALIF.
MERIDIAN, MISS.
MILWAUKEE 15, WISC.
MINNEAPOLIS, MINN.
NEW CASTLE, PA.

NEW ORLEANS 19, LA.
NEW YORK 7, N. Y.
PALO ALTO, CALIF.
PHILADELPHIA 8, PA.
PITTSBURGH 22, PA.
PROVIDENCE 3, R. I.
RICHMOND 29, VA.
ST. LOUIS 2, MO.

ST. PETERSBURG, FLA.
SAN FRANCISCO 5, CALIF.
SEATTLE 1, WASH.
SOUTH BEND, IND.
SPOKANE, WASH.
SPRINGFIELD, ILL.
WASHINGTON 6, D. C.
WILLIAMSPORT, PA.

CANADA (*Dustless Products Ltd.*): Montreal 3, Que. . . . Ottawa, Ont. . . . Toronto, Ont. . . . Vancouver, B. C. . . . Windsor, Ont. ENGLAND: London, N. W. 10, (Ca. Finola). EXPORT: *United Export Division*, P. O. Box 741, South Bend, Ind., U. S. A. DEALER DIVISION: *Floorall*, 2203 East St., Elkhart, Ind., U. S. A.

FINNELL SYSTEM, INC.

2203 East Street

Elkhart, Indiana

Originators of
POWER SCRUBBING AND
POLISHING MACHINES

CLEANS ANY FACTORY FLOOR IN 1 FAST, EASY OPERATION!

It's a fact! Traffic-packed grime . . . incrusted grease, dirt and metal cuttings . . . rubbery layers of dried paint . . . granite-hard blobs of spilled concrete—in fact any kind of soilage on floors can be whisked off in minutes with a Tennant Floor Machine.

Expressly designed for tough jobs that usually take hours or days of tedious hand scraping, the self-propelled Tennant Machine cleans any floor in one operation. And it's an easy one-man job. There's no scraping, no messing with water or chemicals, no "sweeping up" to do.

Dirt is cut loose with fast-cutting drum type steel wire brush or Revo-tool, then hurled into built-in soilage hopper; lighter dust is sucked into vacuum bag. Action of high speed 12" or 16" brush smooths and levels floor surface.

Result: a smooth, clean, dry floor—ready for immediate traffic.

6 TYPICAL ADVANTAGES

1. **REQUIRES ONLY 1 MAN.**
2. **CUTS CLEANING COSTS** as much as 50%.
3. **DRY CLEANS;** no messy chemicals or water.
4. **REDUCES HAZARDS;** keeps floor dry, smooth.
5. **CLEANS ANYWHERE;** doesn't halt plant operation.
6. **IDEAL FOR ANY TYPE** of shop floor.



TENNANT machines are available with electric or gasoline motors.

WRITE or WIRE TODAY for a FREE inspection of your floors. There is a TENNANT factory representative in your vicinity.

G. H. TENNANT CO.
2590 N. 2nd Street • Minneapolis 11, Minn.

NEW REVO-TOOL . . . 9,856 Impacts Per Second!

Has hundreds of drum-mounted alloy-steel cutters to provide a scarifying and pulverizing action for cleaning and leveling floors. High speed hammer-mill action removes grease, tar, chips, paint, cement.

STEEL WIRE BRUSH

Contains twisted tufts of strong steel wire (20, 30 & 39 gauge) mounted in diagonal pattern—won't clog nor streak. Brush is reversible for self-sharpening. Excellent for average soilage. Revolves at 1760 RPM.

The way to finer floors
TENNANT
Floor Maintenance System

most effective. Effective concentrations are odorless and non-toxic to human beings. If they are used, humidity must be controlled very carefully.

Air Conditioning for Crane Cabs

Crane operators are often subjected to extreme conditions of heat and humidity as well as to fumes, odors and dust. A cab cooler is self-contained and supplies clean, cool dehumidified air. These units are designed to heat the cab in winter as well as cool it in summer.

Multiple Tenant Buildings

An industrial plant sharing a "loft" building with other tenants is subject to certain restrictions which do not confront companies having sole occupancy of a building. The company must consider fellow tenants and the building management as well as its own personnel.

These buildings, whose tenants are usually engaged in mercantile and light manufacturing operations, are usually located in built-up sections where zoning regulations may restrict some types of operation. Traffic and parking problems are also frequent.

The following factors should be considered by prospective tenants:

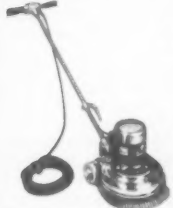
1. Zoning ordinances and their effect on the type of industry.
2. Approval of buildings and facilities by local and state authorities.
3. Floor load capacity.
4. Ventilation and exhaust—particularly of substances that may affect neighboring industries or create a public nuisance.
5. Public transportation and parking facilities.
6. Plant protection—proximity to hazardous operations, type of building construction, fire alarm and emergency lighting equipment, fire fighting apparatus, watchman service, exits, etc.
7. Electric wiring — adequacy and safety for light and power requirements.
8. Elevators—location and provision for operation and maintenance.
9. Personal service facilities.
10. Possibilities for expansion.

Ladder Code

Revision of the Safety Code for Wood Ladders Z14.1-1948 is under consideration, the American Standards Association reports. A meeting of the committee in charge has been planned. A companion document on light-weight metal ladders will also be discussed.



HILD Electrically Operated Floor Machine with solution storage tank mounted on handle



HILD Electrically Operated Floor Machine with plain handle



HILD Power Scraper for dry scrubbing



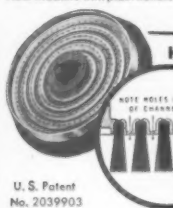
HILD Cup Brush for dry scrubbing



Brush for waxing or polishing



Steel wool pad & holder



HILD Shower-feed Brush

Soap solution is fed onto back of brush—passes through accurately spaced holes, penetrating brush-back between each row of bristles

U. S. Patent No. 2039903

HILD EQUIPMENT for scrubbing and maintaining floors of all kinds



"DRY-SCRUBBING FLOORS"—Stubborn, hard-caked grease and dirt removed from factory floors with Power Scraper or Cup Brush on HILD Floor Machine. Much faster than chipping off with hand spud, and does not mar floor or loosen wood blocks.



"SHOWER-FEED SCRUBBING" FLOORS—HILD System Shower-feed scrubbing and Vacuum Drying permits scrubbing oily factory floors without interrupting production. Gets rid of the oily, slippery condition that causes accidents... leaves floors dry and slip-safe... easily gets around and under machines in close quarters.

Ask for
free demonstration
on your own
floors.



Write today for **FREE BOOK**

HILD FLOOR MACHINE CO.

740 W. Washington Boulevard
Chicago 6, Ill. • Dept. NS3

SKIDPROOF

SAFETY FLOOR FINISH

Keeps Floors Safe And New-Looking

EVERYTHING FOR INDUSTRIAL HEALTH AND SAFETY

You can depend upon Con-Sol Products for every maintenance problem—cleaning, insect or bacteria control, floor upkeep, health and safety.

Write Con-Sol technicians without obligation, about any specific health hazard or unusual condition in your plant. Many years of experience and over a hundred industrial housekeeping products are available to solve your every maintenance need.

Helpful Maintenance Chart On Request



Tested and approved
by Underwriters Laboratories

Skidproof gives any type of floor—wood, linoleum, rubber, asphalt, tile or terrazzo—a hard, durable slip-proof surface that protects against the toughest kind of wear. It's easy to apply, easy to clean. It's quick-drying, odorless, economical—one gallon covers 2000 square feet!

Skidproof overcomes the slipping hazards of ordinary wax—makes rubber burns, stains and surface damage easy to get off—won't crack or check—won't discolor any floor surface. It's the finest surface finish available to keep floors shining, beautiful and safe!



THE HONOR ROLL

Records of operation exceeding 500,000 man-hours, or one year, if exposure exceeds 250,000 man-hours, without a disabling (lost-time) injury are invited.

American Cyanamid Co.

Calco Chemical Div., Marietta, Ohio—June 16, 1949, to January 5, 1951; 564,591 man-hours.

Canadian Industries Limited

Brownburg, Que.—December 15, 1949, to January 31, 1951; 2,138,600 man-hours; continuing. The plant

has won the C.I.L. prize, the highest of the company's four awards under its contest plan. This is the eighth time in more than 20 years that a record meriting the prize has been established.

Combustion Engineering-Superheater, Inc.

Chattanooga, Tenn.—No. 1 Power Boiler Plant—1,362,302 man-hours, No. 2 Heavy Sheet Metal Plant—649,771 man-hours.

Continental Can Co.

East St. Louis Plant No. 14—November 21, 1949, to November 31, 1950; 509,000 man-hours.

Cincinnati Plant No. 15—Septem-

ber 10, 1948, to September 30, 1950; 536,172 man-hours.

Paterson Plant No. 48—June 22, 1950, to September 26, 1950; 661,668 man-hours.

Van Wert Plant No. 83—October 14, 1949, to February 28, 1950; 518,095 man-hours.

St. Louis Plant No. 93—October 5, 1949, to November 31, 1950; 530,000 man-hours.

The Davidson Chemical Corp.

Phosphate Rock Div., Bartow, Fla.—October 20, 1949, to December 31, 1950; 1,087,835 man-hours; continuing.

Curtis Bay Works, Baltimore, Md.—August 19, 1950, to January 6, 1951; 1,000,000 man-hours continuing.

Savannah, Ga., Office—September 16, 1947, to December 31, 1950; 406,320 man-hours; continuing.

The Firestone Tire & Rubber Co.

Akron Mechanical Bldg.—June 20, 1949, to September 23, 1950; 1,729,976 man-hours.

Akron Xylos—March 25, 1949, to May 25, 1950; 1,541,517 man-hours.

Akron Plant I—October 2, 1950, to January 26, 1951; 3,236,965 man-hours.

Akron Plant II—August 9, 1950, to December 13, 1950; 2,354,613 man-hours.

Akron Research Laboratory—August 20, 1947, to January 15, 1951; 1,000,945 man-hours.

Akron Steel Products—May 27, 1950, continuing; 1,000,000 man-hours.

Pottstown, Pa.—July 6, 1950, to January 31, 1951; 3,008,944 man-hours.

Los Angeles—July to November, 1950; 1,580,726 man-hours.

Des Moines—June, 1949 to September, 1950; 1,920,480 man-hours.

Gastonia, N. C.—October, 1949 to May, 1950; 2,090,582 man-hours.

Herring-Hall-Marvin Safe Co.

Hamilton, Ohio — 548,266 man-hours.

Lever Bros. Co.

Edgewater, N. J.—May 20, 1948, to April 17, 1950; 1,632,244 man-hours.

Monsanto Chemical Co.

John F. Queeny Plant, St. Louis, Mo.—224 days; 2,630,165 man-hours. The previous company record, established by the Springfield, Mass., plant in 1949, was 2,623,565 man-hours.

National Tube Co.

Ellwood Works—January 29, 1950, to February 4, 1951; 6,510,255 man-hours; continuing.

North American Aviation, Inc.

Los Angeles Plant—December 11, 1950, to February 4, 1951; 4,562,631 man-hours; continuing.

Downey Plant—October 4, 1950, to February 4, 1951; 2,995,720 man-hours; continuing.

—To page 52

How much is Safer Floor Care worth to You?

Every accident prevented or hazard corrected is worth the care it takes—when you consult the Hillyard Maintainer, he'll explain how to "handle with Hillyard Care" for safer floor care.

"He's on Your Staff—Not your Payroll!"

Anti-Slip HILLYARD FLOOR CARE



ABOVE: Sheffield Steel, Kansas City. Floors, work counters, machinery "safely clean" with Hillyard SUPER SHINE-ALL, neutral chemical no-rinse cleaner.

BELOW: Cement aisles in basement storage of Bekins Transfer Co., San Francisco, as gleaming as a showroom foyer but "anti-slip" with safe, protective ONEX-SEAL on the job.

Worth many times its cost to you in time and money saved. Specialized Hillyard floor products create no fire, explosion or slipping hazards . . . are the most labor-saving available for cement, wood, terrazzo, asphalt tile, linoleum and safe maintenance of valuable machinery . . . in a class by themselves for plant efficiency and safety.

ASK FOR FREE SLIP-TEST FOLDER

Here is dramatic proof of the safety of U/L approved Hillyard products. Address Hillyard, Dept. U-3, St. Joseph, Mo., for your copy.



St. Joseph, Missouri

Branches and Warehouse Stocks in Principal Cities

Washrooms and Lockers

FACILITIES for personal cleanliness, comfort and convenience are conspicuous among the factors that make up good working conditions. Adequate and well-maintained washrooms, toilets and lockers encourage better attitudes and attract desirable workers.

Attention to these requirements in planning industrial and commercial buildings will insure sufficient space and convenient location. Otherwise they may have to be fitted later into less suitable space.

Many plants have outgrown their original facilities. A survey of present equipment checked against the number of employees will show whether additions are needed. Also, equipment should be examined critically according to modern hygienic and decorative standards.

Assistance in planning new quarters or modernizing existing equipment is offered by many manufacturers of washroom equipment and supplies.

Clean washrooms and locker rooms can be maintained only by constant attention. Higher standards of sanitation and lower maintenance costs can be achieved at little extra cost when buildings are planned. Dirt catching cracks and corners and dust collecting surfaces can be avoided. Floors and walls of material that is easily cleanable can be specified.

Location. Depending on the size and type of plant and its operations, lockers, lavatories and toilets may be in one central location or scattered through the plant.

In smaller plants, washrooms and lockers are usually near the entrance.

Toilets should be near the workplace, not more than 200 feet away. In multi-story buildings, one on each floor is desirable; if not practicable, they should not be more than one floor above or below the work place.

Washrooms in large one-story buildings usually are scattered throughout the building. Where there are many small isolated buildings, as in chemical plants and railroad yards, or where much of the activity is outdoors, a separate building may house all these facilities.

Accommodations should be located so that employees will not have to cross highways or railroad tracks to reach them.

When lockers and washrooms of a large plant are near the main entrance, small rooms with lavatories and toilets are often scattered through the plant. This saves the worker's time and makes it possible to close the main room during working hours, lessening danger of theft and requiring less supervision.

Separate washrooms and lockers are desirable for departments where there is exposure to excessive dust,

dirt, heat, vapors, or moisture. These need more lavatories or shower baths than cleaner departments.

Offsetting the advantages of scattered facilities, is the higher cost of installation and maintenance. Centralized toilet and washing facilities are often preferable where women are employed. In some plants a full-time attendant may be needed.

Light and ventilation. Light fixtures should be installed to provide sufficient light in all parts of the room. Forced ventilation may be necessary to provide frequent changes of air.

Floors, and walls to a height of at least six inches, should be of non-absorbent material, such as tile or concrete. Walls should form a tight joint at the floor level, or there should be a cove base at least six inches high.

Walls, ceiling and partitions should be light in color to conserve light and encourage cleanliness.

Wash Fixtures

Where first cost must be considered a satisfactory fixture is an enameled trough over which are hot and cold water pipes with mixing faucets spaced not less than 24 inches apart. Double-width troughs or single-width troughs, back to back, save space.

Individual wash basins make an attractive installation but are more expensive. No stoppers should be used. Faucets should permit washing in running water.

Spray heads at basins or troughs are excellent for a thorough job of washing up. They should be high enough above the trough to permit

washing head, arms and shoulders under the spray.

Mixing faucets, rather than separate faucets for hot and cold water, are recommended. Hot and cold handles should be plainly marked, with the hot water valve always on the left side. A desirable safeguard is thermostatic control of water temperature.

Group washing equipment. Wash fountains are popular in industrial plants, institutions, schools, and other establishments where facilities must be provided for large groups.

These fountains will accommodate the same number of users in less space than would be required by individual washbasins. Reduction in the number of valves and plumbing connections effects additional economies of installation and maintenance.

Economy in use of water is another advantage. Several employees washing at a circular fountain use practically no more water than one person at an individual basin. Each user washes in clean running water at a regulated temperature. A foot or hand-controlled mechanism regulates the flow.

Semi-circular units of 36-inch and 54-inch diameter mounted against a wall are used for narrow or irregular washrooms.

Precast marble and stone are most frequently used but some types are also available in enameled pressed iron and stainless steel. Eight to ten users can be accommodated at a 54-inch circular fountain and 5 to 6 at a 36-inch unit.

Showers are needed in many industries, particularly where operations are hot, dusty or dirty, or where toxic materials are used. Requirements, depending on the health hazards of the plant, range from one

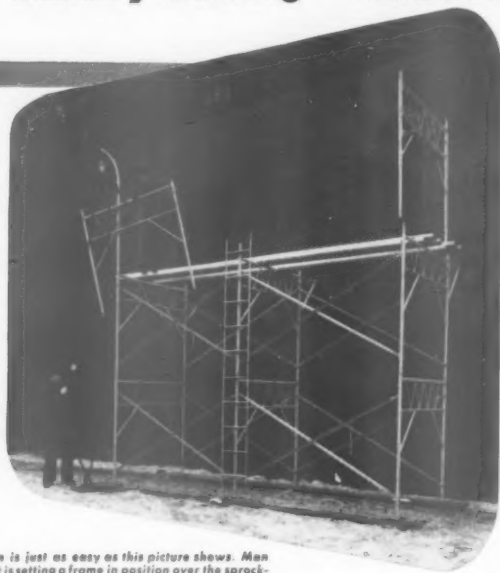
—To page 68



Wash and locker room in Los Angeles plant of Columbia Records, Inc. Sash high on side wall admit generous amount of daylight and aid ventilation, which is also served by duct. Terrazzo floor and glazed tile walls are easy to keep clean. Lockers are mounted in two tiers on elevated concrete bases. (Austin Company)

Safer for every scaffolding job . . .

Money-Saving "TROUBLE SAVERS"



Erection is just as easy as this picture shows. Men at right is setting a frame in position over the sprocket in the frame below as another unit is hoisted at the left. Pivoted braces, slipped into position over stud bolts welded to the frame, are fastened with wing nuts.

PLAY SAFE! Protect your profits! Prevent costly accidents! Save time, labor and money by using "TROUBLE SAVERS" on all scaffolding jobs. Show your men that their safety is vitally important . . . they'll be quick to see the extra protection they get when working on "Trouble Saver" Scaffolding.

This new type of pre-fabricated tubular steel unit cuts scaffolding costs to an absolute minimum. "Trouble Savers" are quickly erected into an unlimited variety of designs to meet every need for interior or exterior scaffolding. No tools are required. Change to "Trouble Savers" now . . . and **SAVE WITH SAFETY.**

Write for
BULLETINS PSS-24 and PSS-14

THE STEEL SCAFFOLDING CO., Inc.

856 Humboldt Street

Dept. NSN

Brooklyn 22, New York

You Profit 5 Ways:

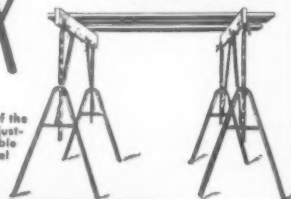
1. **STRONG, SAFE** "Trouble Savers" save you the money that faulty scaffolding costs in accidents.
2. **QUICKLY ERECTED** "Trouble Savers" eliminate the endless loss of time required to build old-fashioned scaffolding.
3. **EASILY DISMANTLED** "Trouble Savers" reduce excessive man hours required to take down old-style scaffolding.
4. **LIGHT, COMPACT** "Trouble Savers" cut down the extra space required for storing out-dated scaffolding.
5. **LONG LASTING** "Trouble Savers" give lifetime service and save the cost of new scaffolding materials on every job.

Adjustable Steel Trestles

- Strong!
- Safe!
- Economical!



* Details of the quickly adjustable "Trouble Saver" Steel Trestle.



for sure footing off the ground . . .

Select GOLD MEDAL

LADDERS AND SCAFFOLDING

GOLD MEDAL LADDERS

It's practical economy to buy the best in ladders . . . and that means **GOLD MEDAL**—the safest, strongest and best suited to service and maintenance work. **GOLD MEDAL** Ladders conform to A.S.A. Ladder Code and are inspected and approved by Underwriters' Laboratories.



GOLD MEDAL SAFETY EXTENSION LADDERS are equipped with automatic safety locks, rope and pulley. Sizes: 16' to 52'



GOLD MEDAL SAFETY PLATFORM LADDER Wide platform, rung back. Knee braces and truss rods. Sizes: 3' to 18' (height of platform)



GOLD MEDAL UNDER-WRITER STEP LADDER Heavy duty, rung back, knee-braced and truss-rodged. Safety spreader. Sizes: 4' to 20'

GOLD MEDAL SINGLE LADDERS. Made in standard sizes from 8' to 24'



MAGNESIUM LADDERS

STEP LADDERS

Weigh approximately 2 lbs. per foot. Sizes: 3', 4', 5', 6', 8', 10'.

SINGLE LADDERS Nine sizes: 8' to 20'.

EXTENSION LADDERS

Automatic spring-type locks. Sizes: 16' to 40'.

"TUBE LOX" TUBULAR SCAFFOLDING

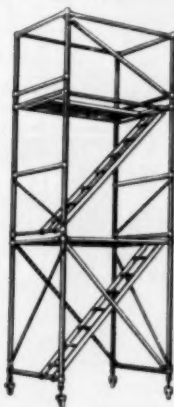
Quickly-erected **Tube Lox** Scaffolding is the safest and most adaptable type for interior or exterior work. Only four, simple basic parts are used.

Curved surfaces, uneven ground, etc., are no problem. "Tube Lox" is ideal for rolling scaffolds.



ALUMINUM

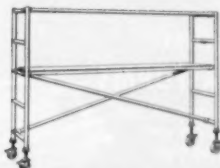
SECTIONAL ROLLING SCAFFOLDS



Two types. Stairway Type (illustrated) and Ladder Type. It's the latest in modern scaffold design—light in weight, easy to erect, rigid, cross braced for extra safety. Interchangeable parts permit scaffold of one or more sections. Approved by Underwriters' Laboratories.

ALUMINUM

SECTIONAL LADDER SCAFFOLDS

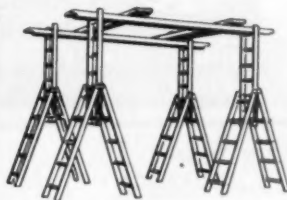


Readily assembled to various heights using ladder sections, 6' 1", 5' 8" or 4' high. Easily moved through crowded aisles or 30" doorways. Can be assembled and taken down faster. Diagonal braces adjust to clear obstructions. Approved by U. L.



GOLD MEDAL JUNIOR SAFETY SWINGING SCAFFOLD

Designed for many light duty operations. **GOLD MEDAL** Junior Scaffolds eliminate the dangers of rope tackle. Steel cables give extra safety. Machines are triple-locked at all times to prevent slipping.



GOLD MEDAL SAFETY EXTENSION TRESTLES

Unequaled for overhead work. Added strength provides extra safety. Sizes from 6' (extends to 10') up to 16' (extends to 28').

Complete Scaffolding Service. Write for catalogs on the complete **GOLD MEDAL** Line.

GOLD MEDAL

LADDERS
SCAFFOLDING

for Greater Safety . . . Efficiency . . . Economy

THE PATENT SCAFFOLDING CO., Inc.

Dept. NS • 38-21 12th St., Long Island City 1, N. Y.

BRANCH OFFICES: Atlanta • Boston • Cleveland • Dallas • Detroit • Kansas City, Mo. • Los Angeles • Miami • Milwaukee • Philadelphia • Pittsburgh • St. Louis • San Francisco • Seattle

LOUISVILLE
Safe-Weight
ALUMINUM PRODUCTS

EXTENSIONS

Two Sections
thru 48 feet

Three Sections
thru 70 feet

HEAVY DUTY STEPS
2 feet
thru 20 feet

ROLLING PLATFORMS

Sizes thru 24 feet
in length and
20 feet high

Details of Scaffolding used in Rolling Platform... also available separately in lengths thru 28 feet.

"SAFE-WEIGHT" denotes the Louisville method for securing rungs to side rail... the ultimate in dependability and service. All standard ladders included in line. Send for catalog.

AVAILABLE AT BETTER DEALERS

LOUISVILLE METAL PRODUCTS CO.
1101 W. Oak Street—Louisville 10, Ky.

THE HONOR ROLL

(From page 48)

Long Beach Plant—November 24, 1950, to February 4, 1951; 733,884 man-hours; continuing.

Ralston-Purina Co.

Circleville, Ohio—August 29, 1946, to January 2, 1951; 1,220,459 man-hours.

Republic Steel Corp.

Youngstown Plant Order and Shipping Dept.—951 days; 2,014,151 man-hours as of January 3, 1951; continuing.

Remington Arms Co.

Bridgeport, Conn.—524 days; 6,087,003 man-hours.

Swift & Co.

Chicago, Meat Packing Plant—20 days; 1,096,860 man-hours, ending October 5, 1950.

Chicago Meat Packing Plant—25 days; 1,353,715 man-hours, ending August 10, 1950.

Hallstead, Meat Packing Plant—921 days; 292,429 man-hours, as of December 2, 1950; continuing.

Kansas City, Meat Packing Plant—108 days; 1,540,079 man-hours as of December 2, 1950; continuing.

Ocala, Meat Packing Plant—683 days; 362,672 man-hours as of December 2, 1950; continuing.

Ogden, Meat Packing Plant—209 days; 512,533 man-hours, ending September 17, 1950.

Scottsbluff, Meat Packing Plant—

SAFETY EQUIPMENT FOR ALL INDUSTRIES

IPCO
ECONOMY FLOOR LINER

FOR MARKING TRAFFIC LANES IN PLANTS, LOADING PLATFORMS, STORAGE ROOMS, Etc.

NO BRUSHES — NO SPRAY OR POWER

NO UPKEEP — NOTHING TO CLEAN

Operates on a spreader principle. Easily and quickly applied to any firm surface; works close to piled material or other projections. 2½ gal. capacity.

Write for Bulletin K-31

IPCO Safety Equipment for all Industries
INDUSTRIAL PRODUCTS COMPANY
2850 N. FOURTH STREET • PHILADELPHIA 33, PA.

BETTER THAN INSURANCE

NEWTON LADDER SHOES PREVENT THE ACCIDENT

ORDER THRU YOUR DEALER OR DIRECT

NEWTON ENGINEERING SERVICE

3341 N. 29th STREET MILWAUKEE 16, WIS.

Newton Ladder Shoes

Newton Ladder Shoes are designed to prevent the accident of a ladder slipping. They are made of hardened steel and are easy to install. They are available in two sizes, No. 1 and No. 2. They are also available in a variety of colors to match your ladder.

Newton Ladder Shoes

Newton Ladder Shoes are designed to prevent the accident of a ladder slipping. They are made of hardened steel and are easy to install. They are available in two sizes, No. 1 and No. 2. They are also available in a variety of colors to match your ladder.

414 days; 460,120 man-hours, as of December 2, 1950; continuing.

So. St. Joseph, Meat Packing Plant—67 days; 801,093 man-hours as of December 2, 1950; continuing.

So. Omaha, Meat Packing Plant—52 days; 635,277 man-hours, ending October 2, 1950.

Union Packing Co., Calgary, Alta.—352 days; 695,684 man-hours as of December 2, 1950; continuing.

Swift Canadian Co., Ltd., Moncton Meat Packing Plant—258 days; 671,065 man-hours, ending November 25, 1950.

Swift Canadian Co., Ltd., Toronto Meat Packing Plant—164 days; 1,287,000 man-hours, ending June 2, 1950.

Atlanta Refinery—478 days; 467,882 man-hours as of December 2, 1950; continuing.

Jacksonville Refinery—1721 days; 413,979 man-hours, ending July 26, 1950.

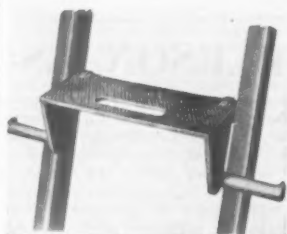
Los Angeles Refinery—884 days; 851,631 man-hours ending July 22, 1950.

Memphis Refinery—1960 days; 506,410 man-hours as of December 2, 1950; continuing.

Atlanta, Plant Food Div.—927 days; 522,986 man-hours as of October 28, 1950; continuing.

Baltimore, Plant Food Div.—480 days; 299,144 man-hours as of October 28, 1950; continuing.

—To page 54



NO MORE LADDER FATIGUE!

Platform Comfort on the New

RES-TEP

\$5.95 post pd.

1. All aluminum permanent mold construction.
2. Simple to apply. No adjustments or locking devices required.
3. Majority of weight applied to ladder uprights—not on rungs.
4. Can be used on any round rung standard ladder.
5. Usable on double extension ladders without interference.
6. Tensile strength of aluminum casting—25,000 pounds per square inch.

RES-TEP INC.

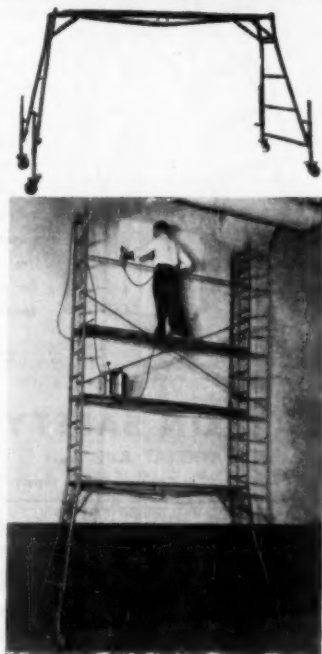
DISTRIBUTORS
EUCLID, OHIO

for STEPPING UP production with SAFETY... BIL-JAX presents:

The Tubular Steel Maintenance TRESTLE

Here's the answer! If you're looking for *Safety* plus convenience and economy, Bil-Jax all steel trestles make overhead jobs—painting, wall-washing, repairing, assembly—easy and *safe*! Adaptable to any job, inside or out. Adjustable to give work platform any height from one foot up. Bridges obstacles—keeps aisles clear. Catwalks are expanded metal for sure footing.

Ball bearing casters (locking type) make moving easy. Patented. Tested and approved by Underwriters Laboratories.



Only high carbon steel tubing is used. All joints electrically welded. Available in 8 or 16 foot lengths; and with end sections and ladders to make any desired height or working combination.

Other Bil-Jax Products

Sectional scaffolding of tubular steel; sectional and lean-to ladders; ladder jacks, window tie-ins; putlogs, accessories.

For sale or rent. Write for catalog P-3 and details.

BIL · JAX · INC. · ARCHBOLD OHIO

MAINTENANCE MEN AND SAFETY ENGINEERS

agree on the many merits of

JOHNSON'S RUBBER LADDER SHOES FOR SAFETY



Top shoes prevent side slipping



Extension ladder shoes



Step ladder shoes are noiseless



For crutches and canes

Order from your dealer or

JOHNSON LADDER SHOE CO., EAU CLAIRE, WIS.

SAVING LIFE IS OUR LIFE



Sizes 3 feet to 16 feet in height (measured from ground to platform). Standard rubber safety shoes at no extra cost.

For Safety's Sake Use DAYTON SAFETY LADDERS

Maintenance men everywhere rely on Dayton Safety Ladders for maximum safety and convenience. Daytons are constructed of tested airplane spruce and reinforced with rigid steel supports to give great strength and lightness of weight.

Handrails of steel guard the large roomy platform for added safety. Half of platform can be raised to form an extra step, when needed. These famous ladders can be set up instantly, are easy to carry and fold compactly for storing. Automatic locking feature insures safety while ladder is in use.

Write today for Bulletin No. D-8

DAYTON SAFETY LADDER CO.

2339 GILBERT AVE.

CINCINNATI, OHIO

In Canada—Safety Supply Company—Toronto



...Prevent Accidents before they happen

For a few cents per pipe, you can equip your entire plant with Brady QUIK-LABEL Pipe Markers. You get a uniform system of pipe identification based on A.S.A. Standard A13. Names of materials printed in large black letters on correct A.S.A. background colors—no hand stenciling, painting, or hard to remember codes. Anyone who can read can tell at a glance the pipe contents and direction of flow. Over 235 different markers and direction arrows in stock. Specials made to order.

Brady QUIK-LABELS stick without moistening—applied in a jiffy, Silicone Plastic treated to resist dirt, grime, moisture—for indoor or outdoor service.

Brady Pipe Markers leave no room for doubt... or TRAGEDY.



DISTRIBUTORS IN OVER 125 PRINCIPAL CITIES

MANUFACTURERS OF SELF-STICKING PRODUCTS

W.N. BRADY COMPANY

1637 E. SPRING STREET • CHIPPEWA FALLS, WIS.

THE HONOR ROLL

(From page 52)

Norfolk, Va., Plant Food Div.—969 days; 771,190 man-hours as of October 28, 1950; continuing.

Savannah, Ga., Plant Food Div.—1264 days; 720,643 man-hours as of October 28, 1950; continuing.

Cairo, Ill., Oil Mill—519 days; 304,254 man-hours as of October 22, 1950; continuing.

Columbia, S. C., Oil Mill—721 days; 250,057 man-hours as of October 28, 1950; continuing.

Memphis, Oil Mill—576 days; 414,230 man-hours as of October 28, 1950; continuing.

Selma Oil Mill—1103 days; 392,812 man-hours as of October 28, 1950; continuing.

United States Steel Co.

Clairton, Pa., Works, Coking Dept.—September 13, 1950, to February 2, 1951; 681,726 man-hours.

Gary, Ind., Sheet and Tin Mill—December 8, 1950, to January 15, 1951; 1,634,000 man-hours.

Gary, Ind., Works, Open Hearth Maintenance Div.—April 21, 1950, to January 13, 1951; 1,199,048 man-hours.

South Works, Chicago, No. 2 Electric Furnace Dept.—August 18, 1949, to February 2, 1951; 382,877 man-hours.

United Air Lines

Sheet Metal Shop, San Francisco Maintenance Base—July 1948 to January 1, 1951; 542,024 man-hours; continuing.

PERSONALS

Dan Adair, formerly supervisor of safety for the Department of Labor and Industries, State of Washington, has joined the staff of the Industrial Department, National Safety Council. He has had a wide background of experience in industry, particularly in lumbering, as well as in the administrative work of a state department.

Mr. Adair will be NSC staff representative for the Wood Products Section and will work with federal and state agencies on special assignments.

Richard W. Goodall has been appointed new Fort Worth District Safety Engineer, it has been announced by Colonel Delbert B. Freeman, District Engineer, Fort Worth District, Corps of Engineers. Mr. Goodall succeeds N. H. Jensen who will become Chief of the Military Procurement Section of the Fort Worth District.

Mr. Goodall is a graduate of Austin College, Sherman, Texas. With the Corps of Engineers for almost 13 years, he worked on the multi-million dollar Denison dam project. During World War II, he saw three years of active duty with the Seabees. He spent two years in the Pacific.

Food Service



A steel mill canteen. Most of the food is served in paper containers. Tile walls are easy to keep clean and fixed windows keep out dust. Controlled ventilating system operates through ducts overhead. (Factory Stores)

FOOD service in the plant for industrial workers has become a factor in good industrial relations and an aid to efficient production.

Most concerns providing hot food in cafeterias or lunchrooms, or snacks from mobile units or canteens, expect no profit from such operations. They are satisfied if they break even. A deficit is considered an investment in good will and efficiency.

Many of them started during the war when public eating places caused many workers to spend lunch hour standing in line. Now, in-plant feeding facilities appear to be permanent.

Types of service. Industrial food service facilities are grouped generally into four types: (1) Cafeterias that prepare and serve a wide variety of hot foods; (2) Canteens or lunchrooms where wrapped sandwiches and other packaged foods are dispensed; (3) Mobile canteens that dispense hot or packaged foods along established routes throughout the plant, and (4) Box lunch service.

The eating environment. An important consideration in any type of food service is the eating environment. Where possible, lunch time should provide a change of scene. Workers should be able to sit down amid clean and pleasant surroundings and eat in an atmosphere conducive to enjoyment and good digestion.

Canteens offer less elaborate menus than are possible with a cafeteria but investment in equipment and operating costs are lower.

The larger plant cafeterias may be used for safety meetings and other gatherings of personnel for business or pleasure.

Where only limited quarters can

be assigned for such use, a schedule of staggered lunch hours for different departments might accommodate the entire force.

Workers who bring their own lunches from home, and those who patronize box lunch services, may eat in the locker rooms, if clean and well ventilated, or in work areas in some types of operation.

In some plants, however, because of the processes involved, consumption of food in work areas is undesirable or even dangerous.

Refrigeration for the home-packed lunches is a convenience that costs little and is appreciated by employees. A large, grocery-type refrigerator will suffice for a large force of workers.

Sanitation. Wherever eating is done, in work areas, locker rooms or lunch rooms, constant vigilance is necessary to maintain clean, sanitary conditions. Facilities for the disposal of garbage, waste paper, bottles, etc., are a necessity.

Nutrition. One advantage of the employee cafeteria is the opportunity to help workers follow recommended diets. The cafeteria management can offer daily specials that will encourage workers to choose proper food.

Healthful diet, according to the nutrition experts, should include the "basic 7" foods:

1. Green and yellow vegetables, raw, cooked, frozen or canned.
2. Oranges, tomatoes, grapefruit, raw cabbage or salad greens.
3. Potatoes and other vegetables and fruit—raw, dried, cooked, frozen or canned.
4. Milk and milk products, fluid, evaporated, dried milk or cheese.

5. Meat, poultry, fish or eggs, or dried beans, peas, nuts, or peanut butter.

6. Bread, flour and cereals, natural whole grain or enriched.

7. Butter or fortified margarine. Principal meals are offered in the middle of each shift, but many industrial leaders are convinced of the value of mid-morning and mid-afternoon snacks as a contribution to stamina and efficiency.

Rest periods. Snacks are made possible in some plants by leaves or "passes" of 10 or 15 minutes for each worker to go to the lunch room. In other plants, mobile snack bars are wheeled through working areas, giving each employee a chance to pause for refreshment.

Conveniently located canteens and coin-operated vending machines provide such items as cookies, candy bars, sandwiches and soft drinks. Some machines even dispense hamburgers, frankfurters and coffee heated by electronic devices.

Vending machines which dispense beverages in paper cups avoid the problem of lost and broken bottles. A good location for these machines is near a drinking fountain.

Quality and variety of food and the type of service in plant cafeterias should be as good, if not better than comparable offerings on the outside. Although many such facilities are operated by concessionaires, workers are aware that the service is intended for their benefit. If there is any slackening in service or quality they are sure to resent it.

Choice of location for the plant cafeteria should depend on such considerations as convenience for the largest number of patrons, efficiency of supply and operations, and a pleasant, relaxing atmosphere. Soundproofing to deaden the noise of dishes and voices is desirable. Light and ventilation are important.

Arrangement will have a great deal to do with efficient operation of the cafeteria. Patrons who want only a bottle of milk or cup of coffee should not be forced to wait in line behind those waiting for a more elaborate meal.

The Kitchen. Strict cleanliness is highly important. Patrons who might get a glimpse of kitchen operations should be reassured by such a sight.

Dishes should be washed, if possible, by machines which can use stronger detergents and hotter water than human hands can stand.

Management. In some plants operation of the food service is under the direction of a health and safety committee of foremen and workers.

Vending machines furnishing beverages, sandwiches, candy bars, chewing gum, and the like, usually are operated with a coin that leaves a margin for profit. Frequently the profit goes to an employees' welfare or recreation fund.

Drinking Water

HEALTH and efficiency, as well as physical comfort, require an adequate supply of pure drinking water. It can be provided at a moderate cost in any industrial plant.

Drinking facilities should be conveniently located and made inviting. Workers will drink enough only if the water is clean, cool and palatable. The attractiveness of the dispensing fixtures is also important—particularly for women employees.

Surveying need. In providing for the needs of workers, the following should be considered:

1. Number of persons to be served.
2. Type of work. Is it light or strenuous physically?
3. Temperature of workroom.
4. Purity of water.
5. Temperature of water.
6. Design of fixtures.
7. Location of outlets.

A minimum of one outlet for each 50 employees has been suggested. More will be needed if the temperature is high or the work involves physical exertion.

If outlets are too far apart workers will not drink enough water or they will spend too much time away from work. Within reasonable limits, however, a pause for a drink is a beneficial relaxation.

Water Supply. Pure water is recognized as an important responsibility of every city, and health departments maintain a close watch over the water supply. But when the plant is located outside the city limits, and for temporary operations such as construction, public utility and oilfield work, the employer must supervise the water supply. It should be analyzed regularly.

If unapproved or "service" water is used for industrial processes or for fire protection, signs should be posted warning against its use for drinking.

Sterilization. Water of questionable purity can be made safe for drinking by chlorination, ultra-violet radiation or boiling.

Filtration is desirable for removal of sediment but this will not kill harmful bacteria.

Temperature of water. For workers who perform heavy manual labor, from 50 to 55 degrees F. is recommended. For office workers, restaurant patrons and others who are less active, the temperature may be as low as 45 degrees.

Methods of Dispensing

Two approved methods of dispensing drinking water are: (1) Drinking fountains of approved design; (2) Paper cups provided at the outlet.

Drinking fountains with individual cooling units are more suitable for many types of industry than a central

cooling system. Fountains of recent manufacture conform to the ASA Code. Important features are a diagonal jet, which does not permit water to fall back on the nozzle, and a guard to keep the user's lips away from it.

Many of the older installations in factories, offices, stores and public buildings do not conform to hygienic standards but some of them could be modernized at moderate cost.

Desirable accessories in drinking fountains are line strainers and pressure regulators. Glass fillers are also useful, particularly for office use.

Hazardous locations. For use where flammable gases, vapors and dusts may be found, explosion-proof fountains are available.

Paper cups should be kept in dust-proof containers and receptacles provided for used cups. The container must be kept filled or workers will salvage old cups.

Sanitation. A cuspidor or sand urn at the fountain will receive much discarded chewing gum, tobacco, etc., that might otherwise find its way into the fountain bowl.

Maintenance of drinking fountains must be watched or unsightly and unsanitary conditions will develop. A few employees will need reminding of the importance of habits of cleanliness, and education is easier when accompanied by a good housekeeping program.

Portable Containers. For many jobs remote from the city water mains, as in construction work, public utility maintenance, in mines and other isolated working places, an

open water bucket is the principal means of supplying drinking water. Too often one cup or dipper serves the entire crew.

Portable coolers, with dispensers for paper cups, are particularly useful on temporary jobs where employees must work at a distance from a source of pure water. The container should have a tight-fitting cover.

Salt tablets in individual packages should be available in hot weather.

Portable drinking fountains provide another method. One model uses a pump similar to a bicycle pump to maintain pressure. A slight pressure on a valve releases a jet of water at an angle, as in approved permanent installations, and a guard prevents the workers' lips from coming in contact with the nozzle. Insulation keeps water cool for several hours.

Work Furniture

WORK FURNITURE, well designed, prevents much unnecessary fatigue. Work surfaces of correct height and posture chairs adjusted to the needs of the individual make an important contribution to health and efficiency.

Ideal conditions would have alternating periods of sitting and standing while at work. Since this is not always possible, furniture should be planned for maximum comfort.

Work benches. The height of work surfaces, such as benches, machines, desk, tables and assembly lines, is determined by whether the worker is seated or standing at the job. It is also influenced by such factors as whether the hands or the eyes are more important to the operation.

Tilted or recessed tables are useful for some operations.

Posture chairs. Factory chairs are used in combination with benches, machines and tables. The proper height relationship between the seat and the work is important. Workers differ greatly in size and proportions and seat height should be adjusted to individual needs rather than to the working surface.

The posture chair also provides back support. Without it, the worker uses part of his energy just sitting up. The back rest fits into and supports the back between the lower ribs and the hips.

The seat should not touch the tendons and blood vessels on the back of the leg just above the knees. A very soft seat is not desirable and the contour is more important than upholstery.

Unless a posture chair is adjusted to the individual worker, most of its benefits are lost.

Floor mats. Standing in one spot for long periods is fatiguing, particularly when the floor is hard and cold. Where covering the whole floor surface with resilient material is not practicable, small mats are helpful.

SALT IN DRINKING WATER

SALT is very necessary to health. Salt and water will keep you alive longer than water and food with the salt removed.

Your body consists of about 80 percent water. Salt is important in helping to keep the necessary amounts of water in all parts of your body.

But both the water and salt in your body gradually are being used up. One of the chief causes of these losses is heat which causes perspiration. A man working in summer sun or in the heat of boiler rooms, foundries, blast furnaces, bakeries, etc., may lose as much as two gallons of water through excessive perspiration in eight hours. Salt also is lost in all perspiration.

It is very necessary to replenish this salt and water lost from your body. Lack of salt is often a cause of heat cramps.

You can easily keep the salt content of your body normal by adding salt to your drinking water. Add a level teaspoonful of table salt to one gallon of water (for smaller quantities in the same proportion). Cool, not ice-cold, water is best for drinking.

Many companies provide salt for employees in tablet form, in convenient containers at the drinking fountains. Salt also should be used freely in summer foods and drinks.



SAFETY INSTRUCTION CARD No. 413

Stairs and Ramps

STAIRS AND RAMPS are permanent parts of the factory structure. They form vital arteries of traffic and deserve painstaking care in construction and upkeep.

Three types of passageways between different levels in common use are (1) Stairs (2) Ramps or inclines, (3) Fixed ladders. Used with reasonable caution, they are serviceable and safe within the following general limitations:

Stairs. Used where the grade is more than 20 degrees and less than 50 degrees from the horizontal. The preferred angle is 30 to 35 degrees.

Long stair flights are to be avoided wherever possible. Landings every tenth or twelfth tread are recommended.

For grades between 7 and 20 degrees, a combination of stairs and level landings may be used.

Ramps and inclines. Ramps should slope as little as practicable; 15 degrees is the recommended maximum.

Some states prohibit the use in industrial establishments of ramps with a rise of more than 1 foot in 10 feet of length.

Fixed ladders. Necessary for grades over 50 degrees. Permissible only when stairways are not practicable. Some states prohibit the use of ladders as a substitute for stairways.

Stairs

Treads and risers. Ratio between depth of stair treads and height of risers determines the angle or pitch of the stairs, which should be between 30 and 38 degrees from the horizontal. Tread depth and riser height must be constant for each flight.



Well-constructed stairway. Slip resistant treads, handrails on both sides. Long flights broken up by landings, and non-combustible construction.

Winders should be avoided. Wedge-shape treads make it more difficult to ascend or descend safely.

Treads must be deep enough that, in descending the stairs, the ball of the foot does not project beyond the nosing and the heel does not strike against the riser above.

The Building Exits Code specifies that treads of new stairs shall not be less than 9 1/4 inches, exclusive of nosing. The Code also states that no stairs with a tread of less than 6 inches, exclusive of nosing, shall be permitted.

Risers should be not more than 8 inches nor less than 5 inches in height. Greater or less height will cause one to take an unnatural stride which may result in a serious fall.

Stairs subjected to severe use, as in public buildings, should have treads with a durable non-slip surface. Materials used for original installation or repairs include abrasive metal, steel with extruded patterns, plastic compounds, rubber and fabric with abrasive surface.

Railings and handrails. The American Standard Society Code on Floor and Wall Openings, Railings and Toe Boards requires that every flight of stairs having four or more risers shall be equipped with standard stair railings or standard handrails as specified.

Ramps and Runways

Ramps and runways are preferable to stairways when it is practicable to use them. They should be built to the least slope possible. Maximum recommended slope is 15 degrees—never over 20 degrees.

For wood ramps materials used in construction should meet the requirements for scaffolds. Width should be adequate for traffic and open sides should be protected with standard railings 42 inches high.

Toeboards should be installed where the ramp extends over a work place or passageway. Cleats 16 inches apart are needed on steep inclines.

Planks should not overlap and the length of the plank should run the long way of the ramp. Ramps used for wheelbarrows should have an odd number of planks with no cleats on the center plank. The width should be not less than 3 feet.

Ramps made of concrete are preferable for heavy traffic. Anti-slip surface can be obtained by rough floating or by incorporating abrasive in the finish coat. Hardeners and trowelling should not be permitted.

When the surface of a concrete ramp has been worn smooth, it can be roughened by scrubbing with dilute nitric acid. The surface is then hosed to remove all traces of acid.



Concrete ramp with well-constructed curb and guard rails. Rubber runner cemented to center of ramp makes trucking easier.

Ramps used for heavy vehicular traffic, such as power trucks and heavy duty hand trucks should have solid curbs in addition to the handrails.

Ramps included as parts of aisles and traffic routes should be as wide as the aisle to avoid bottlenecks.

Splinters, nails, irregularities, breaks and cracks in the surface are dangerous and should be repaired immediately.

Outdoor ramps should be kept clear of snow and ice. When necessary, chders should be applied to give traction.

Design and Layout

(From page 11)

is important. Insurance companies have useful data regarding losses through windstorms and lightning in various sections of the country.

Prevailing winds also affect design and location of smokestacks.

Appearance of the plant—both inside and out—is important. Employee and community relations are influenced by the looks of a factory and customers often judge the product by the plant. The housekeeping program should include the entire property.

Landscaping should be planned for economical maintenance. With power mowers and sweepers a small force can take care of a large lawn if it is not broken up by shrubbery and flower beds.

Decorative floodlighting has been employed by companies with distinctive buildings and well-kept grounds. In times of emergency protective lighting is important. Fences high enough and strong enough to deter trespassers are also important in plant protection.

Entering and leaving the plant. Separate entrances and exits should be provided for pedestrians, vehicular traffic and railroad traffic. Entrance and exit gates should be not less than 35 feet from property line

—To page 60



The Pax trademark symbolizes a deep-rooted tradition of superlative quality maintained through a quarter century of continuous research and development.

**Preference by workers and
management alike in the
nation's greatest companies
indicates you too can
maintain good labor rela-
tions, increase production
and lower costs with
Pax-Lano-Sav* Heavy Duty
Granulated Skin Cleanser**



Advertised in American Medical Association Publications

G. H. PACKWOOD MANUFACTURING CO. • 1545-55 TOWER GROVE AVE. • ST. LOUIS 10, MO.

*Manufacturers Of Fine Industrial Skin Cleansers, General-Purpose
Cleaners, Degreasers And Dishwashing Compounds*

*Trade name of G. H. Packwood Mfg. Co.

Design and Layout

(From page 58)

structures which might obscure vision. Gates for vehicular traffic should be arranged so that drivers will have a clear view of cross traffic when leaving the premises.

Passenger loading and unloading facilities which avoid traffic hazards and reduce the physical effort required to reach the plant should be provided. If the plant is on a main highway, space should be provided where buses can at least pull off to the side for loading and unloading.

Where highway traffic is heavy and a large number of employees must be handled, an underpass or overpass may be justified to avoid congestion and delay in getting to and from the plant.

Some companies have solved the problem by bringing buses right into the plant. One method, employed by a company operating private buses, is to drive the buses down a ramp to a central location. From there employees reach their jobs through passages below the main production floor.

Parking. The parking lot is an important adjunct of today's plant and it should receive consideration in all plans. If it is necessary to cross a busy thoroughfare to reach it, an underpass or overpass may be needed. Separate entrance and exit facilities should be provided. Guides and marking aid in proper use of the area.

Transportation of Materials

General facilities for moving materials in and out of the plant are railroads, highways, water and air. In a few cases all types may be used but more than two are seldom needed. Loading docks should be planned with consideration for traffic outside and within the plant. Railroad sid-

ings and roadways within the plant add some of the problems of railroading and highway traffic to manufacturing operations.

Transportation and material-handling equipment within the plant includes plant railways (standard and narrow gauge), motor vehicles, power trucks and tractors, hand trucks, cranes, conveyors and elevators.

Studies of the flow of materials through the plant, from the time they are received until they are shipped out as finished products, will often reveal ways to eliminate unnecessary handling as well as hazards. Adequate clearances between vehicles and fixed structures must be provided. This is particularly important in laying out plant railways and driveways.

Machine Layout

Machines should be located so that each operator will have enough space to handle the material without interference from other workmen or from machines. It should not be necessary for him to stand in or near aisles where he will be menaced by traffic or interfere with it.

Movement of both persons and materials should fit smoothly into the general scheme of traffic.

In continuous line operation, where machines are frequently served by conveyors, little or no intermediate storage space for materials is necessary. In other types of operation added space for storage of raw and finished materials is essential.

Work and storage space. Space for the full needs of equipment and operators and for the movement and storage of materials should be provided.

Insufficient headroom is often a hazard. So-called "temporary" installations of pipe lines, equipment supports, overhead conveyors and other installations that might cause head bumps can often be avoided. Eleva-

CLEANING SCHEDULE		
Windows Washed	Lamps Cleaned	Walls Painted
Jan. 10	Jan. 20	Feb. 15
Jan. 31	Feb. 20	Aug. 15
Feb. 21	Mar. 20	
Mar. 14	April 20	
April 17	May 20	
	June 20	

A definite schedule prevents overlooking regular maintenance items.

tion drawings should be studied to determine the exact location of equipment that might cause trouble.

A vertical clearance of at least 7 feet should be provided, especially over aisles, passageways and stairways. Where this is not practicable, overhead obstructions should be marked by contrasting paint or padded to reduce possibility of injury.

Storage space must be adequate. Otherwise there will be confusion, bad housekeeping, fire hazards, overloaded floors, and damage to stock.

At unloading platforms ample space is needed for handling and storage of incoming materials.

Supplies, tools, safety equipment, small parts, and equipment not used frequently are often neglected in allotting storage space. This makes maintenance difficult, particularly with such items as personal protective equipment, portable ladders, and hoisting equipment.

Hazardous materials. Some materials which are flammable, toxic or corrosive require special precautions in storage. These include solvents, paints, oils, explosives, compressed gas containers, acids and alkalis. Storage of such materials as covered by codes.

Safe access to all parts of the plant should be provided. Stairways, rather than portable or fixed ladders, should be used wherever possible.

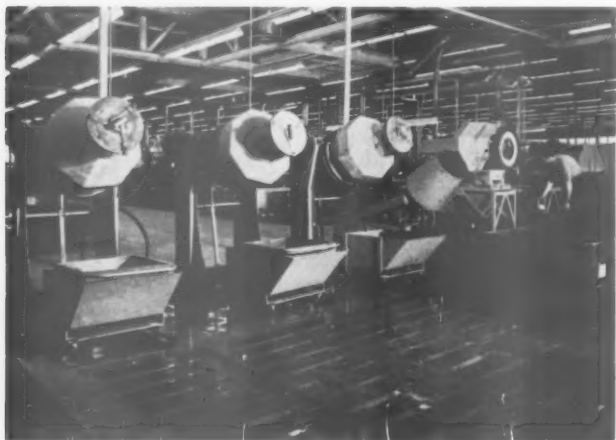
Stairs for general use should be convenient to the areas served. They should be equipped with standard handrails and there should be no obstructions at top or bottom.

In-plant traffic. Planning for the movement of power trucks and tractors, hand trucks and tractors in and about buildings requires provision for adequate clearance in aisles, corridors, passageways, and at corners and curves.

Aisleways should be wide enough to permit trucks to pass one another without crowding and without endangering persons working at machines.

Sufficient width should be maintained for free movement of fire apparatus. For one-way traffic, aisles should be not less than two feet wider than the widest vehicle loaded. For two-way traffic, aisles should be not

—To page 64



Abrasive tile in floor of tumbling room reduces slipping hazards. Drainage trough covered by grating surrounds wet process areas. (A. B. Dick Company)

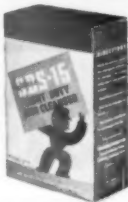
**IT PAYS TO STANDARDIZE
ON TESTED AND
PROVEN SBS
CLEANERS AND
HAND SOAPS . .**



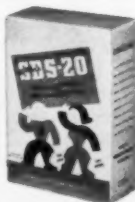
**accurate laboratory testing and years of outstanding
performance in the field guarantees that SBS products
are better and safer for every cleaning job**



SBS-11 Heavy-Duty Skin Cleanser . . . protects the skin while removing stubborn dirt, grease and grime. A time-tested product in use today in over 10,000 industrial plants.



SBS-15 Fine Granulated Skin Cleanser . . . a medium granulated soap for general purpose hand cleaning. A happy medium between SBS-11 and SBS-20.



SBS-20 Extra-Fine Granulated Skin Cleanser. Quickly removes dirt, carbon paper smudges and ink stains from the hands . . . leaves them soft, smooth and pleasantly scented. Ideal for women workers.



SBS-140 Specification Hand Soap . . . Purchased and used by those companies where price is the first consideration.



SBS-221 Heavy-Duty, All-Soluble Borax Hand Soap . . . a really economical washroom soap that lathers quickly and cleans thoroughly . . . is completely soluble.



SBS-222 Light Duty, All-Soluble Borax Hand Soap . . . a milder borax soap that is clean and white . . . leaves the hands smooth, free of dirt, and cleanly scented. For office or factory use.



SBS-30 Waterless Hand Cleanser. No water is needed here. Just rub it on the hands, and stubborn grease, paint and grime loosens and wipes off easily. An excellent product for "on the job" hand cleansing.



SBS-50 Cleaner-Sanitizer for cleaning walls, floors, washrooms and lavatories. Contains a powerful quaternary disinfectant. Cleans and sanitizes in one operation . . . chemical action does the work.



TYPE R DISPENSER — the ideal washroom dispenser, heavily built for years of trouble-free service. Has tamper proof, five way feed adjustment to prevent soap waste. Drip shield prevents clogging from moisture.



FORMULA SC-49 New Principle Cleanser for thorough cleaning of walls, floors, glass, painted surfaces, etc. Requires less work and positively will not scratch porcelain, glass or fine paint surfaces.

SUGAR BEET PRODUCTS COMPANY • SAGINAW, MICHIGAN
"THE WASH WORD OF INDUSTRY"

Listen! LET YOUR WORKERS TELL YOU WHY BANISHING "Factory Hands" LIFTS MORALE

THIS STEPAN CLEANSER
SURE TAKES THE STING
OUT OF WASHING UP!

IT SURE DOES! MY HANDS
HAVEN'T LOOKED AND
FELT THIS GOOD SINCE
I STARTED WORKING HERE.



TWO Correct Cleansers

STEPAN pH6 cuts the toughest grime — gently, swiftly. Recommended for oily operations or where workers are in contact with known skin irritants.

STEPAN'S revolutionary NEUTRA-FOAM — not a soap — a new mild synthetic skin detergent.



Fast—but gentle—pH6 takes the hazard and irritation out of wash ups. Raw, red "Factory Hands," the uncomfortable and often inefficient result of scrubbing with harsh cleansers, can be a thing of the past with pH6 in your plant washrooms.

STEPAN pH6 was carefully formulated to protect the worker involved in oily or greasy operations. The low

pH of this cleanser lessens the hazard of occupational dermatitis—means better morale and greater efficiency to you.

STEPAN NEUTRA-FOAM, a new, synthetic, lathering skin cleanser concentrate is truly neutral, having a pH of only 7.2. NEUTRA-FOAM will not hydrolyze and form free alkali, which tends to destroy the protective acid mantle of the skin.

for FREE SAMPLES
and complete technical data
write to

THE STEPAN CHEMICAL CO.
1353 N. North Branch St.
Dept. N53, Chicago 22, Ill.

NEUTRA-FOAM has other advantages, too. Employees like its rich, abundant lather. And this cleanser leaves no lingering, disagreeable soapy odor on the skin.

NEUTRA-FOAM can be shipped anywhere at any time of the year. It is readily and completely soluble in all proportions with water. And it's neat in use.

STEPAN REPRESENTATIVES

SAFETY, INC.,
2608 Olive St., St. Louis 3, Mo.

HOUCAN SALES,
P. O. Box 4082, Baton Rouge, La.

THE GENERAL EQUIPMENT CORP.,
261 Franklin St., Boston 10, Mass.

THE WATSON CO.,
1443 Main St., Buffalo 8, N. Y.

SAFETY FIRST SUPPLY CO.,
5005 Euclid Ave., Cleveland, Ohio

SECO SAFETY PRODUCTS CO.,
1437 Brooklyn Ave., Detroit 26, Mich.

GUARDIAN SAFETY EQUIP. CO.,
491 Prospect St., East Orange, N. J.

GUARDIAN SAFETY EQUIP. CO.,
1915 Westheimer, Houston 6, Texas

KOPPELMYER SAFETY CO.,
6237 North Park Ave., Indianapolis 5, Ind.

BELLOWS & CO.,
Howells Ridge Rd., Knoxville, Tenn.

GUARDIAN SAFETY EQUIP. CO.,
6104 S. Main St., Los Angeles, Calif.

W. H. POPPE,
4920 Harriet Ave., Minneapolis, Minn.

SANITATION SUPPLY CO.,
731 Lincoln Ave., Peoria, Ill.

GUARDIAN SAFETY EQUIP. CO.,
4606 Walnut St., Philadelphia 39, Pa.

SAFETY FIRST SUPPLY CO.,
425 Magee St., Pittsburgh, Pa.

ROCHESTER SAFETY EQUIP. CO.,
83 Howell St., Rochester, N. Y.

GUARDIAN SAFETY EQUIP. CO.,
1875½ E. 17th St., Tulsa 4, Okla.



the **DIRTIER** the better
for **LAN-O-KLEEN!**

DIRT that's really hard to remove . . . that's deeply imbedded in workers' hands . . . that irritates cuts and abrasions—directly affects production figures! Think of the materials your present cleaner won't remove: graphite and metallic dust . . . heavy grime and lubricants . . . even common soil and office dust—no matter how hard you scrub!

LAN-O-KLEEN, the industrial soap powder, is designed for "heavy-duty" dirt removal. A fine corn meal base sponges out the pores . . . while thick suds sweep away surface dirt. As water is added, soothing Lanolin spreads over the skin, leaving hands fresh-feeling and clean as a whistle. Its soothing emollient action won't aggravate cuts and bruises. Further, Lan-O-Kleen and the sturdy Lan-O-Kleen dispenser are a dollar-saving combination—as a West representative can easily demonstrate.

LAN-O-KLEEN the industrial hand cleaner containing **LANOLIN**



Show me the
hand cleaner
that will
remove
stubborn dirt!

West Disinfecting Company, 42-16 West Street, Long Island City 1, N. Y.
(64 Branches in the U. S. and Canada)

Gentlemen: I'd like to have a local WEST representative come out and give me a demonstration of Lan-O-Kleen.

Mr. _____ Position _____

Company _____

Address _____

City _____ Zone _____ State _____

7

Design and Layout

(From page 60)

less than three feet wider than twice the width of the widest vehicle loaded.

Clearance must also be provided for overhead cranes and conveyors. At least 24 inches of clearance should be allowed the highest points of cranes and overhead trestles and other overhead fixtures. Also, 24-inch clearance should be allowed between any part of the crane and wall, column or other stationary structure.

Cross aisles should be avoided at tops and bottoms of ramps and in-

clines. If possible, aisle and ramp should be in a straight line.

Ramps used for both truck and foot traffic should have an extra three-foot width reserved for pedestrians.

Pedestrian traffic. Aisles should be proportionately wider to accommodate rush traffic flow to such points as time clocks, lunchrooms and exit gates. Some companies provide main aisles up to 20 feet wide and cross aisles not less than 8 feet wide.

Where foot traffic parallels railways or other fixed-track carriers, adequate clearance should be provided to allow the aisle edge to be marked by a distinctive line on the

floor. Aisles should always be clearly marked, by painted lines or otherwise.

Gates, warning signals or signs, and barricades should be provided. Where volume of traffic is heavy, underpasses and overpasses for both vehicular and pedestrian traffic should be considered.

Personal Service Facilities

Wash and locker rooms. In large plants where thousands of employees come in through one or two entrances, from which they have to reach distant locations under one roof, the use of distribution tunnels under the manufacturing area is increasing. With such a layout, locker rooms and toilet facilities may be located along the tunnels at points close to each individual department where stairs lead directly to the production level.

In other large plants where such passages are not justified, accessible locker and washrooms can be located either around the perimeter of the building or on balconies.

In many plants it is necessary to place these conveniences in the midst of production areas. Space can be conserved by compact double-deck units.

Food service. Facilities can be adapted to fit the needs of the plant. Sometimes a central cafeteria may be the answer, or a number of small canteens around the perimeter of the plant may be satisfactory. Layout should be planned for quick service, cleanliness and a cheerful atmosphere.

Windstorm Damage

No section of the country is immune to damage from windstorms, nor is the menace limited to any season. Tornadoes, cyclones and hurricanes are more frequent in the milder months while destructive blizzards cause heavy damage in the northern sections during winter.

Roof coverings, copings and flashings are especially vulnerable to wind damage. In addition, outside structures such as stacks, ventilators, canopies, signs and cranes should be designed and anchored to resist wind, and good maintenance should be provided.

Wood and steel-deck roofs need special anchorage to resist lifting by strong winds. Standard roof anchorage is designed to resist gust velocities of 90 m.p.h. In most cases this will protect against minor tornadoic storms and reduce the extent of damage outside the vortex of a severe tornado.

The vortex of a tornado rarely strikes a plant but there are many storms severe enough to tear off outside structures and plank-on-timber of joisted roofs that are not anchored on. Such forces are encountered in severe gales and thunder squalls as well as in minor tornadoes and in zones on the edges of the vortex of a major tornado.



A NEW METHOD OF CONTROL

simple, inexpensive . . . it is in the soap

NOW the soap in your washrooms can aid in the cure and prevention of industrial dermatitis. Amazing new Hexachlorophene germicide — powerful enough to kill more than 90% of the germs of the skin — has been added to Powdered Germa-Medica Hand Soap. Hexachlorophene's effectiveness and mildness has been proved in the hospitals for surgical and nursery use. Write today for test results and a sample of Powdered Germa-Medica with Hexachlorophene. Test it under your own conditions. It will mean real savings by preventing absenteeism and dermatitis.

POWDERED
Germa-[®]
Medica

Hand soap with
Hexachlorophene



HUNTINGTON LABORATORIES, INC.

Huntington, Indiana
Toronto, Canada

- ☐ Yes, please send test results on Hexachlorophene Soap.
☐ Send sample of Powdered Germa-Medica with Hexachlorophene.

NAME _____

ADDRESS _____

CITY _____ STATE _____



EXPLOSION-PROOF

TEMPRITE WATER COOLERS

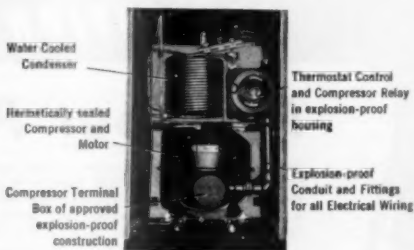
TEMPRITE'S complete line of 10 drinking water coolers now includes an explosion-proof unit which may be installed and operated with complete safety in dangerous, combustible atmospheres. The refrigeration compressor is hermetically sealed and all electrical apparatus and connections are enclosed within Underwriters'-approved, explosion-proof housings. A water cooled condenser is used to obtain the large cooling capacity required for industrial applications and high ambient temperatures.

Sturdy, all stainless steel cabinet panels can be supplied as optional equipment. Temprite's unusually attractive stainless steel top is standard.

An optional foot pedal attachment operates in combination with a fingertip action water flow control button. **Capacity is 10.3 gallons per hour.**

Temprite Model PB-10WE has Underwriters' Laboratory approval for use in hazardous locations covered by the National Electrical Code for the following classifications:

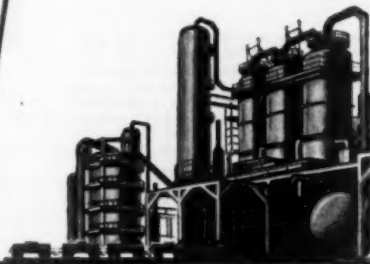
- Class I, Group C. Atmospheres containing ethyl ether vapor.
- Class I, Group D. Atmospheres containing gasoline, petroleum naphtha, alcohols, acetone, lacquer solvent vapors, and natural gas.
- Class II, Group F. Atmospheres containing carbon black, coal and coke dust.
- Class II, Group G. Atmospheres containing grain dust.



COMPLIES WITH all requirements of Commercial Standards CS-147-43; Chicago Plumbing and Testing Laboratories; and all other local plumbing and sanitation codes.

for...

chemical plants
refineries
paint plants
grain processing plants
collieries
textile mills
wood-working plants
etc., etc.



TEMPRITE PRODUCTS CORP.,
P.O. Box 72-F, East Maple Road,
Birmingham, Michigan

Please send more information on the Temprite Explosion-Proof Water Cooler and the name of your nearest distributor.

NAME _____
ADDRESS _____
COMPANY _____
CITY _____ STATE _____

"Be right... buy Temprite"

Temprite

PRODUCTS CORPORATION

P.O. BOX 72-F, EAST MAPLE ROAD
BIRMINGHAM
MICHIGAN

SAVE

Maintenance AND Towel Costs WITH

Sani-Dri
ELECTRIC
HAND OR HAIR DRYERS



Save valuable maintenance time and eliminate continuing towel expense. New high-speed Sani-Dri provides quick, automatic hand or hair drying service 24 hours a day year after year! Sani-Dri is a permanent solution to your washroom sanitation and drying problem . . . and SAVES UP TO 85% OF YOUR WASHROOM COSTS!

NEW FASTER-DRYING FEATURES!

- New faster-drying heating element!
- New smaller, oval nozzle produces more concentrated stream of air!
- Instant starting push-button switch with automatic shut off!

All Sani-Dri Electric Dryers are GUARANTEED, and have carried the Underwriter's Seal of Approval for over 18 years!



New Brochure!

Shows all Sani-Dri hand and hair dryer models with new high-speed drying features . . . plus installation pictures. Write today!

Distributors in Principal Cities
THE CHICAGO HARDWARE FOUNDRY CO
"Dependable Since 1897"
1035 Commonwealth Ave. • North Chicago, Ill.



TODAY, more than ever before, workers' welfare counts! One important instance is the installation of Halsey Taylor Coolers and Fountains at strategic locations throughout the plant, saving steps, reducing fatigue, keeping production at top peak! Get the facts

The Halsey W. Taylor Co.
Warren, Ohio



Halsey Taylor
Fountains and Coolers

INDIVIDUAL CUTTING OIL SANITATION

For Your Plant!

Here's how to prevent costly coolant spoilage and eliminate foul odors: ask your DOLGE Service Man to take samples of your coolant for free bacteriological and chemical analysis. A complete laboratory report will show the correct coolant handling method for your particular operation.

Only if tests warrant it will a DOLGE STERIDOL GERMICIDE be recommended—a "tailor-made" preparation to meet your exact needs. Used as directed it will not irritate the skin or corrode metals. The cost?—Far less than a cent per gallon of coolant!

Write for Booklet "Cutting Oil Sanitation."

STERIDOL
Dependable
DOLGE
WESTPORT, CONNECTICUT

SIMPLE SINGLE-ACTION DISPENSER. Easy as lifting your finger. No Bother. No Waste. No Fluid. Takes **MAGIC LENS TISSUE** Refill Cartridges instantly. Dispenses the interfolded, superior, super-strength, jumbo-size silicone treated sheets one-by-one . . . **AND AT A GREAT SAVING.** No moving parts; strong 20-gauge cold-rolled steel, baked enamel finished in National Safety Council Green. Attractive, indestructible, compact, secure. Lock and key feature. Five year guarantee. Yet it costs only \$2.50.



Rub this **MAGIC LENS TISSUE** over lens. See how dust, dirt and smears vanish like magic and a sparkling—and preserving—polish occurs at once. **MAGIC LENS TISSUE** leaves an invisible coating of silicone on the surfaces which protects them; gives longer clarity, makes cleaning easier, better, quicker, more lasting . . . all in one operation—and quick! It's General Electric Silicone—from the G.E. House of Magic—that does it.

The tissue is, without question, the finest paper that can be made . . . scientifically controlled at every step . . . treated to give softness, super-strength, freedom from lint. So economically priced per sheet that *each sheet is over 50% larger than usual*, yet it costs you less. 800 interfolded jumbo-size sheets per packet, 6 packets to the carton @ \$1.40 per packet (\$8.40 per carton). And—remember—the one-operation Dispenser costs only \$2.50. All prices FOB our factories. **ORDER TODAY.**

NOTHING SUCCEEDS LIKE SUCCESS

Ours is a great country, because it is an alert country. For example, here's a safety and production unit of merit; a tested market waiting for it. So, what happens? Scientifically developed by the General Electric Company (Silicones Division) and ourselves against our 25 years background in the pulp and paper industry, made right, priced right, introduced only a few short months ago, its list of users has already swept the alphabet of industry from American Can to Zenith Radio.

Wherever sparks fly, or dust or dirt accumulates, wherever lint and smears foul goggles and glasses—production suffers, safety suffers, eye-sight suffers. For goggles and glasses stay dirty and dangerous *unless you make it as easy as possible to clean them.*

If you ask your folks to use a rag, or ordinary fibre paper, lint and smears stick to most lens. If you ask them to fuss with a cleaning fluid, time is wasted by this old-fashioned method. What you really want is to both *clean* and *polish*—and protect—the lens **EASILY**. What you really want is **MAGIC LENS TISSUE. NO BOTHER. NO WASTE. NO FLUID.**

Among craftsmen on assembly lines, in workshops, refineries, process and machine operations of every sort, in offices, laboratories, engineering departments, and at every Safety Station—**MAGIC LENS TISSUE** means crystal-clear sight.

COMPLETE YOUR INSTALLATIONS NOW!

Wire or write us,
or order through
your safety supplies
jobber—today.



Magic Lens Tissue
T.M. REG. U.S. PAT. OFF. SILICONE TREATED

The Silicone Paper Company of America, Inc.
General Offices: 230 Park Avenue, New York 17, N. Y.



HAND CLEANERS

Skilled hands are a valuable asset to management, as well as an important responsibility of it. Mione Hand Cleaners can insure that asset by helping to share the responsibility for keeping skilled hands in prime working condition.

WORKERS like the quick-lathering, gentle-scrubbing, easy-rinsing action of Mione. And its very definite skin conditioning value.

MANAGEMENT likes the safe, sanitary, efficient, trouble-free Mione features, plus its economy per pound, low cost per scrub-up, and the basic economy of skilled hands always at top productivity.

YOUR SUPPLIER of washroom needs can give you full particulars about Mione so that you, too, can benefit from the know-how gained from 40 years of making nothing but better and better soap for the hands.

WRITE US FOR THE NAME OF THE MIONE SUPPLIER IN YOUR AREA

Mione
MANUFACTURING COMPANY
 Makers of famous hand soaps
 for 40 years
 COLLINGDALE PENNSYLVANIA

Washrooms and Lockers

(From page 49)

shower for every five men to one for every 50 men.

Showers may be of the compartment or the circular multi-stall type. Equipment should be thoroughly scrubbed daily and a disinfectant is recommended to destroy fungus organisms.

Floors and approaches should be of non-slip material, such as concrete with an abrasive surface. A curb 4 inches high should be erected around the shower stalls to keep water within the enclosure.

The curb should be painted a contrasting color to increase visibility and reduce the hazard of tripping.

Fungus infections. The warm, moist air of the shower room offers an ideal place for the development of fungus organisms which cause "athlete's foot." Toes made tender by confinement in shoes are susceptible to this infection. Frequent cleaning of floors and shower stalls is necessary and disinfection by steaming or chemical germicides is helpful.

Careful drying of the feet and the use of antiseptic foot powders and preparations for toughening the skin are among the preventives used. Cure of infections is a medical problem.

Quick-acting showers at convenient locations for emergency use should be installed where acids and caustics or other corrosive chemicals are handled.

Skin cleansers may be classified into soaps, sulfonated oils, and synthetic detergents.

Powdered soaps are more economical than hard soap in individual cakes. These consist principally of powdered hard soap, a ground scrubber, and a water softener. The corn meal scrubber may be ground coarse or fine. Most of these soaps can be used with hard water.

Liquid soaps are widely used and generally satisfactory where a scrubbing agent is not desired.

Antiseptic soaps, some with deodorant qualities, are believed to have some value in preventing skin ailments among workers exposed to cutting oils, petroleum oils and heavy coal tar distillates.

Sulfonated oils are useful for dry and soap-sensitive skins and for those exposed to defatting action of petroleum oils and solvents. They do not lather as freely as soaps.

Synthetic detergents are of several types, with qualities which make them useful for various occupations. They are useful for removing oil, wax and tar films.

In choosing skin cleansers, the industrial physician or safety director

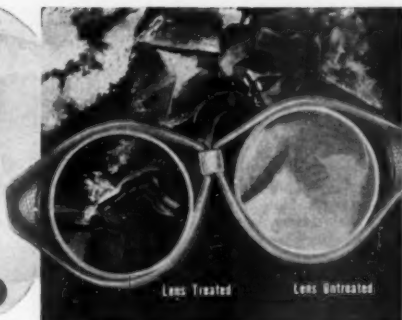
STOP DERMATITIS WITH GLOV-COTE protective hand cream



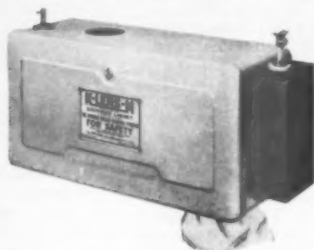
★
 no
 harmful
 wax
 fillers!
 ★
 washes
 off
 with
 cold
 water!

One application gives employees hours of skin-protecting comfort. Guards sensitive skin from industrial and chemical irritants—inks, lacquer, paints, oils, and grease!

THE CHASE CHEMICAL COMPANY
 2900 Dover Ave., Cleveland 9, Ohio

K-LENS-M*Anti-Fogging*
LIQUID

Steps fogging and steaming of eyeglasses and goggles—glass or plastic. Easily applied, K-LENS-M Anti-Fogging Liquid forms an invisible coating that resists formation of fog or moisture on lens surfaces . . . brings clear vision to eyeglass wearers under severe conditions of hot steaming vapors, freezing temperatures, humid summer heat, or body perspiration . . . overcomes hazards of fogged goggles . . . increases worker efficiency and safety.



ANTI-FOGGING STATION
(Attaches Securely to Cabinet)

FINGERTIP SPRAY PUMP
(No Air Pressure Needed)

EASILY INSTALLED—SERVICED
(Locked In by Cabinet Door)

Make your own test—

Order a sample bottle of K-LENS-M Anti-Fogging Liquid complete with spray pump, \$2.00 postpaid.

Manufacturers of

K-LENS-M

Liquid Lens Cleaner
Lint-Free Lens Tissues
Anti-Fogging Liquid
Dispenser Cabinets
Anti-Fogging Station

THE WILKINS CO.
INCORPORATED
CORTLAND 1, N. Y.

Lightfoot
TRIUMPH!

*America's
Newest
and Most
Advanced
Soap
Dispenser!*

- Streamlined Beauty!
 - Mechanical Perfection!
 - Visible Soap Indicator!
 - Economical Operation!
- Additional information
and prices on request

LIGHTFOOT SCHULTZ COMPANY
663 FIFTH AVE., NEW YORK 22, N. Y.

KEEP COOL

with

"HEADCOOL"

The Sanitary

HEAD "PERSPIRATION" Absorber

Inexpensive, yet does the same job as the most costly sweat band. Washable, long-wearing, highly absorbent. Used extensively in all industries, large and small.

Made By

ASHLAND INDUSTRIES

5616 SO. ASHLAND AVE., CHICAGO 36, ILL.

RE public 7-0333

Send sample HEADCOOL Band.

Firm

Address

City Zone State

Section 1—The Working Environment

should know how to select a cleanser which is gentle to the skin but efficient in removing soil. It is sometimes necessary to use different cleansers in various parts of the plant, or to use different cleansers on different types of skin to remove the same soil.

Use of naphtha, turpentine, carbon tetrachloride, and other solvents should be discouraged. These have a defatting action on the skin. Some are toxic and some are highly flammable.

Drying the skin. Common towels are now almost universally prohibited. Individual towels kept in

lockers may not be changed often enough and they may come in contact with soiled work clothes.

Towel services are used by some establishments, usually stores and offices.

Paper towels meet sanitary requirements and are economical and convenient. Dispensers should be kept filled and receptacles for used towels provided.

Recessed waste receptacles keep one more object off the floor, improving the appearance of the washroom and making cleaning easier.

Electric driers are acceptable from the hygienic standpoint and simplify

maintenance. These driers may be of the pedestal type or recessed into the wall. They are operated by foot pedal. Newer models are said to dry the skin in less time without increase in current consumption.

Toilets

Toilets should be partitioned off from washrooms and lockers. Partitions of enameled metal are attractive in appearance and easy to keep clean. These partitions may be suspended from the ceiling or mounted on the walls.

Wall mounted toilets make floor cleaning easier and quicker. The long, oval-rim type of toilet with open-front plastic seat is most widely used. Foot-operated flush valves are favored by many.

The flushing mechanism should be rugged since employees often kick the handle instead of operating it by hand. Flush valves should be equipped with vacuum breakers to avoid back siphonage.

Minimum number of toilets:

No. of persons	No. of toilets
1- 9	1
10- 24	2
25- 49	3
50-100	5
Over 100	1 for each additional 30 persons

Toilets should be not more than 200 feet from any workplace; preferably less than 150 feet.

Let SIGHT SAVERS Supplement your EYE SAFETY PROGRAM



New SIGHT SAVER tissue dispenser contributes to

Safety Sight Saver tissues clean and polish eyeglasses quickly, easily and thoroughly . . . wipe away the best excuse men give for not wearing safety glasses. It doesn't make sense to ask a man to work with dull tools — or with dirty safety glasses.

Efficiency Employees, especially skilled craftsmen, work more safely, more rapidly, more accurately and with less eye strain if their glasses are Sight Saver clean.

A Safety Feature That Pays for Itself . . . many times over — by reducing the time required to keep glasses clean — by making safety glasses more comfortable to wear — by increasing accuracy and decreasing eye fatigue.

Easy to Install . . . Easy to Service



All-metal Sight Saver dispenser can be installed in a few minutes . . . serviced by simply inserting refill packet about once a month. Fool-proof, permanently lubricated mechanism dispenses one 3" x 7" tissue at a time.



DOW CORNING CORPORATION • MIDLAND, MICHIGAN

Dunking Stations!

ANSWER YOUR PLANT SMOKING PROBLEMS



Unit No. 2 for mounting on walls, columns and posts.

Unit No. 1, (not illustrated) same as unit No. 2 but with upright and base for use on floors, aisles, etc.

Send for illustrated folder which gives complete details.

Standard Industrial Products Co.

DEPT. C

1710 Main St.

Peoria, Illinois



K-LENS-M

Modern Liquid
Lens Cleaner for
Glass and Plastic

K-LENS-M liquid lens cleaner gets eyeglasses and goggles clean for clear vision . . . so important to safety.

K-LENS-M does the job faster, at lower cost, and with less maintenance. Thoroughly cleans glass or plastic eyewear without scratching, streaking, or leaving a film.

The K-LENS-M Dispenser Cabinet is a complete lens cleaning unit, specially designed for easy installation, use, and service.

Ask for the K-LENS-M folder—full information to help you save money on eyewear cleaning.

NEW
Large Size K-LENS-M
Heavily Molded-Shape Bottle.
Holds 12% More K-LENS-M.
Economical—fewer re-fillings.
Hundreds of Film-Free
Cleanings.

K-LENS-M Dispenser Cabinet

Complete Lens Cleaning Station

Finger-Tip Spray Dispenser—

No air pressure needed.

Dispenses Tissues—one at a time.

Disposal Space for used tissues.

Special Paint Grip Steel Cabinet.

Acid-Resistant Baked Enamel Finish.



Facilities for men and women should be plainly marked.

Urinals should be placed throughout the plant in convenient locations to avoid loss of time. One urinal for each 40 men is usually sufficient. Automatic flush valves use more water but are more effective in maintaining cleanliness since many persons seem reluctant to touch hand-operated valves.

Floors of toilet rooms should be of impervious materials, smooth and free from cracks. Tile and concrete are satisfactory. Floor drains permit frequent flushing.

If possible, toilet rooms should have outside windows for light and ventilation. State or municipal regulations usually contain provisions for ventilation.

Cuspidors should be provided where needed and cleaned at least daily. The disposable type requires less handling.

Lockers

A well-equipped locker room is a necessity in any plant. It is an aid to orderly habits and often to health.

Where there is exposure to toxic substances, extra precautions are needed to prevent dangerous materials from being carried away on clothing. Separate lockers prevent contact between street and work clothes. They should preferably be in

BEAT THE HEAT!

NEW

E-X-P-A-N-D-E-D COTTON* SWEATBANDS

ONLY 2½¢
EACH



FEATHER-LIGHT—You feel only soft cool, comfort!

E-X-P-A-N-D-E-D COTTON—Cotton-backed gauze expanded to 8 times normal thickness!

FOUR-LAYER FOLD—Extra absorbent capacity!

NO METAL—Only pure cotton and cotton-covered elastic. No rusting, chafing, no discomfort.

So inexpensive, they can be used and thrown away...
So strong, they can be rinsed and used repeatedly!

Here's the answer to perspiration...super-soft, super-absorbent E-X-P-A-N-D-E-D COTTON SWEATBANDS. Real comfort for those hot-spot jobs... a better band at a lower price.

Perfectly designed. No metal parts to rust or chafe, cotton-covered elastic holds band firmly but you can't even feel it. Get E-X-P-A-N-D-E-D COTTON SWEATBANDS from your regular dealer in safety or first aid supplies. Write us for free sample today.

GENERAL BANDAGES, INC., Chicago 5

Makers of GAUZTEX—The bandage that sticks to itself

separate rooms with shower stalls between them.

In such plants supervised washup periods and shower baths are important safeguards.

Lockers with slanting tops have obvious advantages. The tops cannot be used for storage, a practice which otherwise can be checked only by constant supervision. Dust is conspicuous and easier to remove.

Built-in lockers, which extend to the ceiling, provide no outer surfaces where dust can accumulate.

Lockers should be at least four inches off the floor to permit flushing the floor without wetting the contents of the lockers.

Forced ventilation can be supplied through perforations in the bottom or louvers in the doors. An exhaust system to draw air through slots in the lockers to the outside of the building is recommended.

Rest Rooms

A rest room should be provided in all establishments where 10 or more women are employed. Where there are fewer women and a separate room is not available, suitable space, properly screened, should be provided.

For 10 women, minimum space is 60 square feet, with at least 2 square feet for each additional woman.

an employee. For less than 100 women at least one bed or couch should be provided; for 100 to 250 workers, 2 beds, and 1 bed for each additional 250 workers.

Rodent and Insect Control

RATS, mice and insects act as carriers for many contagious diseases, and their annual toll of destruction and spoilage runs into many millions of dollars.

Rat-proof construction will help to keep rodents out of buildings, but control measures should be extended over a wide area, to rout them from their ground burrows and hiding places under lumber, scrap or trash piles.

Permanent control must be based on the fact they cannot exist without food, water and shelter. This makes good housekeeping vital, inside buildings and in the yard as well. Spilled grain must be swept up daily. Food scraps from employees' lunches should be placed in covered metal containers.

Extermination. Temporary control consists of removing the existing rat population, by means of traps, gases or poisons, or by the use of their natural enemies, such as ferrets and certain types of dogs. This step is advisable, before permanent measures are taken, to prevent their migration to other premises.

Calcium cyanide, applied to rat burrows with a foot pump duster, is a popular poison. Carbon monoxide from a gasoline engine exhaust, chloropicrin and methyl bromide also are effective. Manufacturers furnish directions for using rodent killers.

Lethal fumigant gases may be applied only by licensed exterminators. Many fumigants are also available in eradicating weevils, moths, beetles and other insects. Carbon disulphide has been used effectively in controlling weevils in grain.

Red squill is one of the most popular rat killers. It acts only as an emetic on other animals, but rats cannot vomit and death is certain. Its slow action permits the rodents to crawl off in their burrows to die without the nuisance of removal.

Quick-acting poisons are apt to kill in every conceivable place, contaminating and causing offensive odors that may be hard to remove.

Barium carbonate, phosphorus or arsenic compounds, thallium sulphate, ANTU and sodium fluoroacetate also are widely used. The latter two should not be used around food, because of possible contamination. There are no effective antidotes for these poisons.

Insecticides are available in liquid, powder and paste forms. DDT sprays are effective against many insects and may be applied by hand or power sprayers. DDT is relatively non-toxic to humans, but users should avoid inhaling the spray or getting it on the skin.

The commonsense way to CLEAR AND PREVENT ATHLETE'S FOOT

in Shower Rooms

**SAFE, NON-POISONOUS SKIN TOUGHENING
TO COUNTERACT THE SOFTENING
EFFECTS OF WEARING SHOES**

**NEAT, CLEAN
ODORLESS,
PLEASANT TO USE**



**BATHERS LIKE ONOX
IT MAKES THE FEET FEEL FINE**

Recent research has upset former theories regarding the control of Athlete's Foot. ONOX is revolutionary. A safe, non-poisonous skin toughener does the work. You may test it under any conditions you choose to impose and without obligation. For example:

- *We will ship prepaid, your trial order for any amount of ONOX and equipment. Use it for 60 days. If at the end of that time ONOX has not proved itself to your complete satisfaction you owe us nothing.*

We would like to send you the simple details of the ONOX method now used by hundreds of institutions—coast to coast.

ONOX, INC., DEPT. L, 121 SECOND STREET, SAN FRANCISCO 5, CALIF.
WAREHOUSES: BROOKLYN, CLEVELAND, NEW ORLEANS, LOS ANGELES

Important: Did you note the "Radical reversal of medical teaching" in TIME Magazine? A report based on 10 years observation by 91 U. S. Skin Specialists calls Foot Baths "Futile"—"Illogical"—"Potentially harmful." Onox on the other hand is a safe, non-poisonous skin toughener. IT STEPS UP RESISTANCE... INSTEAD OF BREAKING IT DOWN! Try the Onox way. You'll be surprised!

(Copy of TIME article sent on request.)

Personal Protection

Eye Conservation

INDUSTRIAL operations expose the eyes of workers to a variety of hazards, including flying objects, splashes of corrosive liquids and molten metals, dusts, and harmful rays.

Injuries to the eyes result in a high degree of disability and often facial disfigurement. The cost per injury from the standpoint of medical treatment and compensation is high, and the total cost to employers and employees is heavy.

Some eye hazards can be controlled at the source by means of enclosed processes and shields on equipment. Many eye injuries, however, are caused by casual flying particles in occupations considered non-hazardous.

For this reason, some companies have introduced eye protection for all employees and visitors. Many of these companies have reported substantial savings through eyes saved. Few accident prevention programs have produced such measurable results as eye protection.

General types of protective equipment for eyes and face include:

1. Goggles (safety glasses)
2. Face shields
3. Welding masks and helmets
4. Acid hoods

These devices are available in many types for practically every occupation. The protective medium may be heat-treated glass, transparent plastic, wire screen, or light-filtering glass.

A complete program of eye conservation includes not only protection against injury but also correction of visual defects which reduce the individual's efficiency and increase his liability to accident.

Visual surveys. For pre-employment examinations and periodic re-examinations there are devices which indicate the visual status of the individual. Manufacturers of this apparatus have prepared systems which use the data obtained from the tests in determining the fitness of the employee for various occupations.

These tests may be given by trained laymen. Their purpose is to detect visual defects, not to prescribe for them. Those needing corrective lenses are referred to refractionists (ophthalmologists or optometrists) to be fitted with glasses.

In prescribing corrective lenses, whether for safety goggles or ordinary spectacles, the refractionist should be familiar with the needs of the job. It is particularly important to know the distance of the working level from the eye.

Corrective goggles. For visual defects, the wearer may have the correction ground in heat-treated lenses, or cover goggles may be worn over spectacles.

For most cases corrective goggles are preferable for optical reasons as well as convenience. Most prescriptions can be ground in protective glass.

Cover goggles are often preferred where a near-sighted person requires deep minus lenses. These would be excessively thick at the edges and too thin for adequate protection at the center. Cover goggles also have advantages where the correction is complicated and the lenses would be subject to pitting on the job.

Familiar types of cover goggles are the cup type with heat-treated glass lenses and the wide vision type with plastic lenses.

Types of Goggles

Heat-treated lenses fitted into spectacle frames or cup goggles offer basic protection. The nature of the particular job and the eye hazards involved determine the specifications.

Spectacle goggles are recommended for light or moderately heavy work, such as grinding, machine work and assembling where working positions are not too close.

IN THIS SECTION

Eye Conservation	73
Respiratory Protection	75
Foot Protection	76
References	87
Safety Clothing	94
Leg Protection	104
Hands and Arms	108
Head Protection	112
Hearing Aids	116
Safety Belts and Harness	117



Several instruments are available for making survey of employees' vision. Information thus obtained shows jobs for which employees are fitted and reveals those in need of a refractionist's service. (Caterpillar Tractor Company)

Side shields of metal or plastic provide protection against light objects flying from the side. They should be used where operations are close together, or where employees work together on the same operation.

The frame must be rigid enough to hold the lenses in proper position in front of the eyes. The nose bridge should be adjustable, or goggles should be available in enough sizes to fit various faces.

Cup goggles are used for heavy grinding, machining, chipping, riveting, work with molten metals, and similar operations.

The cup should be wide enough to protect the eye socket and distribute the impact from any blow over a wide area. The cup should be flame-proof, corrosion resisting, and non-irritating to the skin.

Rubber mask-type goggles are made with lenses of heat-treated or untreated glass or plastic for protection against splashes of corrosive chemicals and exposure to fine dust. Some types may be worn over spectacles. The ventilated types are less troubled by fogging.

Dust goggles of the leather mask type are made with heat-treated, untreated or filter lenses. Wire screen ventilators around the eye cups provide ventilation.

Miners' goggles of non-corrosive wire screen are used for work underground and in other locations where fogging is a serious problem. The

TYPES OF EXPOSURE (National Bureau of Standards Handbook H24)	TYPES OF PROTECTION									
	CUP GOGGLES	SPECTACLES	SIDE SHIELDS	PLASTIC EYE SHIELD	PLASTIC FACE SHIELD	WIRE SCREEN SHIELD	FILTER GOGGLES	RUBBER GOGGLES	HOODS	HELMETS
Heavy impact, large particles—Chipping, calking, some riveting operations, sledging in quarries.	X		X							
Moderate impact, protection from dust and small flying particles—Scaling and grinding metals, stone dressing where quartz is not involved, some woodworking operations.		X	X	X	X					
Metal sparks and spatter—Electric spot and butt welding where there is no exposure to excessive energy or excessive glare.			X	X	X					
Splashing metal—babbiting, pouring lead joints for pipes, casting hot metal, dipping in hot metal baths.	X			X	X	X				
Splashing liquids—Handling acids and caustics, dipping in galvanized tanks, some japanning operations.	X				X			X	X	
Reflected light and glare—Long exposure to light reflected from snow, water, roads, etc.; incidental glare from furnaces, working near acetylene welding, etc.	X	X	X				X			
Injurious radiant energy—moderate reduction in visible radiant energy—Oxyacetylene welding and cutting.	X									
Injurious radiant energy—Large reduction of visible radiant energy.										X

screen is coated a dull black to reduce reflection.

Ease of cleaning and sterilization should be kept in mind when goggles are purchased. Most types now on the market meet these requirements.

Goggles should be fitted as close to the eyes as possible without touching the eyelashes to give the widest possible angle of vision.

Minimum permissible size for oval lenses is 44.5 mm. in the vertical dimension and 48 mm. in the horizontal. Round lenses should be 50 mm. in diameter.

Lenses should have no appreciable distortion or prism effect.

Strength of heat-treated lenses (resistance to impact) should conform to specifications of the Federal Standard Stock Catalog, the Government's official purchasing guide, Specification GGG-G-501B.

Plastic lenses have qualities of optical glass in light transmission and freedom from distortion. They are light in weight and do not fog as readily as glass. They are useful for spotwelding, as molten metal does not adhere to them as readily as to glass. They withstand considerable impact but are marred or scratched more easily than glass.

Harmful Rays

Glass effective in filtering out harmful ultraviolet and infrared rays is available in many types of

goggles, face shields and helmets. These filter lenses are worn for welding and cutting, furnace and boiler observation and other operations where there are high temperatures and excessive glare.

Didymium glass is used for protection against bright yellow glare encountered in glass blowing and similar operations. It is also useful for some precision operations in laboratories.



Wire brushing exhaust collector ring from Pan American clipper ship. Goggles are provided and a conspicuous sign reminds employees that they must be used.

Melters' goggles of cobalt blue glass come in spectacle and cup types in graded shades. Lenses with color in the upper half and clear glass in the lower half are also obtainable.

Sun glasses do not qualify as ray-filter glasses for most industrial exposures. They are designed for protection against discomfort caused by sun glare. The better glasses conform to optical standards but many of the cheaper ones show considerable distortion.

Welding helmets provide protection for the eyes and face under the severe conditions of arc welding. They are attached to headgears so they can be raised for placing the work. Impact goggles worn under the helmet provide protection when the helmet is raised. Helmets are made of dielectric fiber resistant to sparks, molten metal and flying particles, and a poor conductor of heat. Easily replaceable cover glass protects filter plate.

Some helmets have a lift-front glass holder which permits rapid inspection of work without removing helmet.

Welding hand shields are used on operations where a helmet is not practical, and on tack welding, set-up work, inspection and time study work. Construction is similar to welding helmets.

—To page 111

Respiratory Protection

RESPIRATORY equipment protects the worker against a wide variety of air contaminants. These range from the relatively harmless "nuisance" substances to toxic dusts, vapors, mists and gases.

Air contaminants, where possible, should be removed at the source. Enclosed processes also keep contaminants out of the air. However, leaks and breakdowns may occur, and there are operations where exposure is brief or infrequent. For such contingencies, personal protection should be provided.

The worker's air intake may be safeguarded by three principal methods:

1. Mechanical filters to remove dusts and mists.
2. Absorption or chemical reaction to remove gases and vapors.
3. Supplied air.

EYE, HEAD AND RESPIRATORY PROTECTION—DEFINITIONS National Bureau of Standards Handbook HM

Protector—A device placed in front of or over the eyes, face or head to afford protection from the hazards in industrial processes or from the natural elements.

Goggles—An optical device worn in front of the eyes, whose predominant function is protection to the eyes only.

Face Mask—A device worn before the eyes and a portion or all of the face, whose predominant function is protection to the eyes and face.

Helmet—A rigid device worn by the operator which shields the eyes, face and neck, and a portion or all of the other parts of the head and is held in place by suitable means.

Hood—A non-rigid device which completely covers the head, neck and portions of the shoulders so as to exclude dust and flying particles.

Shield—A device to be held in the hand, or supported without the aid of the operator, whose predominant function is protection to the eyes and face.

Gas Mask—A device to be worn on the face, and so arranged that the inhaled air is drawn entirely through a canister which cleans it chemically.

Supplied-Air Respirator—A device designed to supply the wearer with air suitable to breathe while surrounded by a contaminated atmosphere, and to prevent the latter from being inhaled.

Hose Mask—A supplied-air respirator having a tight-fitting facepiece to which is attached a hose through which air may be forced by a blower, and through which the wearer can inhale whether the blower is operating or not.

Air-Line Respirator—An air-line respirator is a supplied-air respirator designed to be connected by a hose to a supply of fresh air under positive pressure sufficient to maintain a continuous flow into the facepiece.

Filter Respirator—A device designed for the wearer to inhale the surrounding atmosphere after it has passed through a filtering medium to remove the impurities. The filtering medium may chemically absorb or mechanically obstruct the impurities.

Cartridge-Type Respirator—A filter respirator whose filtering equipment is carried in one or more cartridges mounted on the facepiece. Such a respirator may be a mechanical filter respirator, a chemical filter respirator, or a combination of both.

Types. Four general types of respiratory equipment are:

1. Canister gas masks.
2. Chemical cartridge respirators.
3. Filter respirators.
4. Supplied air equipment (hose masks and air-line respirators).
5. Self-contained apparatus supplying oxygen or air.

Each type of equipment has a definite field of usefulness, as well as limitations. Manufacturers and dealers want to know the type of exposure when equipment is ordered.

Approval. Equipment which meets accepted standards carries the label of the Bureau of Mines. Approval specifies type of exposure as well as design and construction.

Gas Masks

A gas mask consists of a face piece connected by a flexible tube to a canister. Inhaled air is drawn through the canister which cleans it chemically. No one chemical has been found which will remove all contaminants so the canister must be chosen for the exposure.

Canister gas masks with full face piece are for emergency protection in atmospheres immediately dangerous to life. Their effectiveness is limited to 2 per cent by volume. An exception is ammonia for which the limit is 3 per cent.

Identifying colors. Canisters of gas masks are painted as follows:

1. Black—Organic vapors.
2. White—Acid gases.
3. Yellow—Organic vapors and acid gases.
4. Green—Ammonia.
5. Brown—Organic vapors, acid gases and ammonia.
6. Red—Universal; all industrial gases, including carbon monoxide, smoke and fumes.
7. White with green stripes—Hydrocyanic acid gas.
8. White with yellow stripes—Chlorine.
9. Blue—Carbon monoxide.

Cartridge Respirators

Chemical cartridge respirators usually have a half-mask face connected directly to a small container. Chemicals are similar to those used in gas masks.

Cartridge respirators are used only for non-emergency situations—for atmospheres which are harmful only after prolonged or repeated exposures.

Filter Respirators

Protection against any form of particulate matter can be provided by a mechanical filter respirator of proper design. Major items to be considered are resistance to breathing offered by the filter element, adaptation of face piece to faces of



Hose mask and hand-operated blower used for work in a petroleum storage tank. Body harness and life lines are also needed for work in closed spaces where atmosphere may be irrespirable. (Shell Oil Company)

various shapes, and fineness of particles to be filtered out.

ASA Code Z-2 requires that the complete respirator show a resistance not in excess of 50 mm. of water to inhalation at a rate of 85 liters of air per minute. Resistance to exhalation under the same conditions may not exceed 25 mm. Commercial respirators are usually held to considerably lower resistances.

Specified types of filter respirators are approved for protection against inhalation of non-toxic or nuisance dusts. Other types are used for silica and other pneumoconiosis-producing dusts, toxic dusts, vapors and mists.

Mechanical filter respirators are not effective against solvent vapors, injurious gases, or oxygen deficiency.

Hose Masks

Atmospheres immediately hazardous to life require air supply from a point beyond the contaminated area. With a hose mask, air is normally supplied by a blower. The wearer can inhale through the hose when the blower is not operating.

As a rule, **hose lines** (with at least a 1-inch connection) are recommended rather than **air lines** with connection to a compressed air system. In case of failure of air supply, it is possible to breathe through a considerable length of hose.

Hose masks are not approved with more than 150 feet of hose or where inhalation resistance exceeds 2.5 inches of water, or the exhalation resistance exceeds 1 inch of water.

Attachments of additional hose should not exceed the total prescribed length and should be approved for use with that type of mask and should have approved couplings.

The hose mask should always be used for work which involves entering tanks or pits where there may be a dangerous concentration of dust, mist, vapor, or gas, or oxygen deficiency.

—To page 130

Foot Protection



Up to 100 persons are fitted daily with safety shoes at this store operated by Weirton Steel Company. Several makes and models are stocked.

FOOTWEAR for the industrial worker must protect the worker against moisture and hot substances, rough surfaces and sharp objects underfoot, and falling objects. Shoes must be durable, properly fitted and comfortable. Many types of industrial shoes meet these requirements.

Safety shoes, supplemented by footguards for more severe exposures, have proved their effectiveness in preventing crippling foot injuries.

Safety shoes. As generally used the term means shoes with reinforced toe caps. These are available in a variety of styles for men and women.

Steel toe caps are specified for most occupations because of their ability to resist heavy blows.

Fiber and plastic are used for shoes worn around electric equipment where resistance to impact is secondary to the need for insulation.

Standards. American War Standards, Z41 Series, of the American Standards Association, are still the accepted guide for purchasers of safety shoes for men and women.

Specifications call for a well-constructed, durable work shoe with the toe reinforced with a steel cap. The cap is supported on a flange resting on the sole. It must support a static load of 2500 pounds and resist the impact of a 50-pound weight dropped one foot. When subjected to either test, the inside of the toe cap must not come closer than one-half inch from the upper surface of the sole.

Strength requirements for shoes for both men and women are identical.

Shoes meeting these requirements bear an identification stamp on one shoe of each pair. The stamp indicates the type of shoe according to the code classification.

Distribution

To secure acceptance of foot protection, safety shoes must be comfortable and properly fitted. Purchasing must also be made convenient.

Many of the larger companies maintain well equipped stores with a wide range of lasts and sizes and trained attendants to fit the shoes. Shoes are sold at or sometimes below cost and employees may buy them on the payroll deduction plan.

Smaller plants are not always in a position to stock an adequate range of sizes or provide expert fitting service. Many companies have made arrangements with local shoe dealers whereby employees may select shoes and pay through payroll deduction.

A mobile shoe service is offered by dealers in some areas. A truck equipped as a shoe store is manned by an experienced fitter who is responsible for all adjustments. A variety of styles and a full range of sizes is carried. Periodic visits are arranged and between visits shoes can be obtained quickly on special order.

This service is rendered on a moderate mark-up basis and the plant can charge the employee any part of the cost.

Types of Shoes

Safety shoes, generally, are well made on lasts designed for foot comfort. They are available in many types and styles, some suitable for street wear. The protective toecap does not add appreciably to the weight or cost of the shoe.

General purpose shoe. The most widely used type is the blucher, in either high cut or oxford styles. It is available in a wide range of sizes, widths and lasts, ranging from

rugged, heavy-duty styles to those suitable for street wear. It is the basic type, with certain differences in detail for special occupations.

Foundry shoes. An early type of safety shoe was the foundry shoe with elastic panels at the sides. There is no opening on the instep where molten metal or hot sand can penetrate and the shoe can be pulled off quickly in an emergency. This model is furnished with steel box toe.

Spark-proof shoes. Shoes with brass hooks and eyelets and brass nailed heels are worn in some industries where sparks from iron or steel might ignite flammable gases.

Shock-resisting shoes. Some are non-metallic with fiber box toes; others have steel box toes which are partially insulated. These shoes are designed for work around electric current. They are also worn by those handling flammable materials, by workers in explosives plants, and in grain products refining operations.

Conductive shoes are designed to ground body static and prevent its building up on the body to the point where it could cause a spark.

The conductivity of these shoes is affected by other conditions. Wool, natural silk and nylon socks act as insulators to the body; cotton, lisle or rayon are satisfactory. Foot powder also serves as an insulator. The floor as well as the shoes must be a conductor.

Rubber footwear. Where work must be done in deep mud or in water, rubber boots contribute to health, comfort and safety. Rubber boots are available with steel box toes.

Soles and Heels

Leather is comfortable and durable for normal conditions. Oak leather will not give satisfactory service where heat is excessive or where the shoe is subjected to continuous dampness. Chrome tanned leather is more resistant to heat.

Rubber is resistant to moisture, alkalis and most acids. It deteriorates quickly when exposed to grease, oil, solvents, some acids, or excessive heat.

Neoprene is resistant to grease, oil and solvents that would ruin rubber as well as to moisture. It stands up well against cutting and abrasion.

Both rubber and neoprene are improved from the antislip standpoint by incorporating some material such as cord or cork in soles and heels. Cord soles and heels, similar in construction to automobile tires, have been giving good service for many years.

A newer type uses cork blended with the rubber or neoprene. Slip resistance is improved and the soles are lighter and more flexible. They also help to insulate the feet against heat or cold.

—To page 89

UNITED STATES SAFETY SERVICE Co.

Kansas City 6, Missouri • Branches in Principal Industrial Cities

SAF-I-SHIELD

SAFETY GOGGLE

- Rugged one-piece design
- Full protection
- Low Cost—Fits over personal glasses
- Made of Optilite
- Optically correct
- Genuine comfort



No. A-202—All Crystal Clear Wide-Angle Vision — No blind spots.

No. A-212 — Clear lens, green sides. Reduces glare top and sides.

No. A-222—All green anti-glare. Protection from sunlight, reflected glare, etc.

SAF-I-SPEC

SAFETY SPECTACLE

- Smart appearance
- Instant snap-on lenses
- Low Cost—Replaceable lens
- Genuine comfort
- Made of Optilite
- Optically correct



No. A-71003—All crystal clear spectacle-type. Protection from impacts.

No. A-71123—All green anti-glare lens. Protection from sunlight, reflected glare and impacts.

SAF-I-DUO

SAFETY GOGGLE

- Full protection from impacts
- Velvet soft, durable VINYL frame
- Low Cost—Replaceable lens
- Same lens also fits SAF-I-SPEC
- Fits over personal glasses



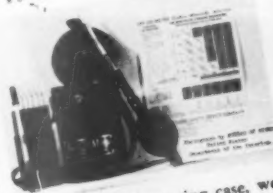
No. 271008 — Screened vents, chemical splashes and dust protection.

No. 271000—No vents, for protection from splashes, fumes, dust.

No. 271001 — Regular ventilation. Impact protection and general use.

THE SAF-CO-METER

Carbon Monoxide Indicator



The SAF-CO-METER offers a fast, simple, inexpensive, dependable method of testing air for carbon monoxide content. Complete unit, including metal carrying case, weighs only 20 ounces and can be carried in coat pocket. Manufactured under U. S. Secretary of Commerce License.

"PEP-UP" IMPREGNATED SALT TABLETS

Release Salt Immediately
(Not Enteric Coated)



Starts dissolving immediately. Dissolves completely in about 100 minutes. Slow, controlled dissolving eliminates nausea. Meets Government Specification No. SS-S-31C.

THE PACKAGE IS THE DISPENSER "PEP-UP" Impregnated Salt Tablets come to you in sanitary, factory-sealed dispensers at no extra cost. Also manufacturers of "PEP-UP" Enteric Coated Salt Tablets





MonoGoggle

Style No. 1 large nose illustrated.



How Effective is Your Eye and

First, are you getting all types and exactly what you need in eye and respiratory safety equipment? You'll have no trouble with WILLSON on that score because WILLSON makes the most complete line of these safety devices. There are over 300 items in plastic and Super-Tough® eye protection, welding goggles and helmets, respirators and gas masks. And they are sold throughout the nation by well-stocked distributors who, also, can give you any help you need in establishing or maintaining a long range safety program.



Safety Spectacles

Style A series—no sideshields.
AS series—with sideshields.



Heavy Duty Cup Goggles

Style RR50 shown—
other styles available.



Rubber Mask Goggles

Style X41 ventilated—
X44 non-ventilated.



Dust and Mist Respirators

Style No. 5D shown.
Style 45D—with large facepiece.



Respiratory Safety Program?

Second, do your workers react favorably to the safety equipment you furnish them? Will they wear it unless you take measures to force them to do so? Try WILLSON protective equipment and you'll find workers more willing to cooperate. It's far better to forestall worker resistance by selecting goggles and respirators which have been designed and proved to provide comfortable wear over long periods. Protection *plus* comfort pays off in lower accident rates and higher production.

See our catalog for complete information. Get it from your WILLSON distributor or write direct to

WILLSON PRODUCTS, INC.
205 Washington St., Reading, Pa.



Welding Helmets

Popular No. 60 Flip-Front illustrated.



Willson-Weld* Glass

Meets Federal Specifications in all shades from 3 to 14.



Chip-Weld Goggles

Style DC53 shown above.



Cover-All* Welding Goggles

Style CW60 shown, others available.



Chemical Cartridge Respirators

Style No. 700 series—for industrial gases and vapors.



Industrial Accidents Cost

\$40. PER WORKER

—AO makes what it takes
to reduce them!

According to the National Safety Council, the costs of occupational accidents to industry average nearly \$40.00 per worker, including both direct and indirect costs. Over the years *your* accident costs will follow the *law of averages* unless your workers wear the PROPER EQUIPMENT on every hazardous job. Remember, AO makes COMPLETE LINES of quality protective products — in goggles, respirators, clothing and gloves.

American Optical
SAFETY PRODUCTS DIVISION

Southbridge, Massachusetts
Branches in Principal Cities

AO SAFETY EQUIPMENT



**Call Your Nearest
AO Safety Products
Representative for
the complete line
in Industrial
Protection**

LEADERSHIP IN SAFETY GOGGLES!

With the introduction of the NEW F4100 Metal Ful-Vue Goggle, AO contributes another important advance to the science of eye protection. Its new eyewire, endpiece, temple, side shield construction and other features lend added comfort as well as safety and long service. This goggle is a helpful and welcome addition to AO's extensive line, totaling over twenty types of safety goggles for every industrial purpose.

LEADERSHIP IN RESPIRATORS!

Judge the *completeness* of AO's respiratory line by the fact that AO respirators protect against more than 150 gases, vapors, dusts and mists encountered in industrial operations. Judge the *quality* of AO's respiratory line by (1) its wide acceptance by industry (2) the incomparable facilities of AO's research laboratories (3) the skill of experienced workers with a *long* tradition of quality workmanship and (4) the safeguard of rigid inspection standards.

LEADERSHIP IN PROTECTIVE CLOTHING!

As with AO goggles and respirators—so with AO protective clothing where workers require the finest in working comfort, safety and serviceability against flame, heat, sparks, metal splashes and rough stock. More and more safety directors and workers agree that AO gives most for the protective clothing dollar—whether the product be gloves, handpads, mittens, finger guards, coats, jackets, leggings, sleeves, spats or aprons.

● He represents a complete source of supply which saves time in selection, ordering and delivery.

● He represents a quality source of supply—the AO name is an established name in industrial protection wherever a goggle, a respirator or protective clothing is worn.

● He is handy to you—in one of nearly 300 American Optical Company branch offices conveniently located in all principal industrial centers.

➡ See A O Products at Booths 62, 63, 64 at the Greater New York Safety Council Show, New York, April 3 thru April 6.

LOOK AT THIS, DADDY!



1 SELL EYE SAFETY TO EMPLOYEES

Ask your distributor's representative to show you the kit of posters, pay envelope inserts, PA system scripts and other material that sells workers forcefully on *desire to use* proper safety eyewear.

2 SAFETY GLASSES FOR EACH JOB

A complete range of Bausch & Lomb safety eyewear, engineered to meet the most rigid tests for each job classification in your plant.

3 PROTECTION PLUS CORRECTION

For at least 50% of your workers prescription lenses are necessary to working efficiency as well as to safety. Your B&L distributor offers prompt prescription service on all types of industrial eyewear.

DADDY can't look now, dear. Not any more. He can't even know you as he once did because of the agony in his heart...

In winning workers to a genuine desire to use safety eyewear, you've got to hit hard to make your blows felt.

The graphic story pictured above is one from a dramatic series by Bausch & Lomb designed to make your employees *want to use* safety eyewear wherever ruled. It's the all-important educational phase of Bausch & Lomb's *total* eye safety service. Write Bausch & Lomb Optical Company, 681-3 St. Paul St., Rochester 2, New York, for complete information on a total eye service.



BAUSCH & LOMB

Safety Eyewear



the finest in plastics for dependable eye-protection

MOLDED CURVED MODELS

Fit over most styles of rimless and metal-frame glasses.



MODEL 7 (illustrated) Crystal clear plastic frame. Medium bridge size. Model 27—large bridge size.

MODEL 9 "Blackout" plastic frame. Medium bridge size. Model 29—large bridge size.

MODEL 10 Transparent green plastic frame. Medium bridge size. Model 210—large bridge size.

MODEL 10G2 Transparent green plastic frame and green Impax* plastic lens. Medium bridge size. Model 210G2—large bridge size.

SPECIAL EYE AND FACE PROTECTORS

MODEL 4456 Opaque "blackout" frame and lens. Medium bridge size only. Ideal for checking furnace heat. Other models for aluminum-working, x-ray, laboratory and physical therapy work.

SQUARE PLASTIC FACE-SHIELD (illustrated)

Non-distorting lens; for heavy-duty, full-face protection.



WELDING COVER LENS

Protects costly welding filters against pitting, hot metal splatters. Will not shatter under impact.

MOLDED SQUARE MODELS

Fit over most styles of prescription glasses.



MODEL 1-N (illustrated) Crystal clear plastic frame. Medium bridge size only.

MODEL 3-N "Blackout" plastic frame. Medium bridge size only.

MODEL 30 Extra-wide, crystal-clear plastic frame. Extra-large bridge size. Fits over widest safety lens spectacles.

TUC-AWAY
T. M. REG.

new lightweight, spectacle-type eye savers*

Extra-strong Plexene* plastic frame (511) shown with Semi-Cup lenses—has Retrax* metal temples with telescoping adjustment for perfect fit. (Frames also available with plastic club temples; Model 510).



Shatterproof methacrylate lenses are optically correct and can be replaced instantly.

5 colors:

CLEAR
LIGHT GREEN
MEDIUM GREEN
DARK GREEN
COBALT BLUE

ONE FRAME CAN BE USED INTERCHANGEABLY WITH THREE TYPES OF LENSES:



with REGULAR SIDE SHIELD LENSES for ordinary eye hazards
MODEL 511 CSS



with FULL (1") SIDE SHIELD LENSES for complete side protection
MODEL 511 CSSF



with NEW SEMI-CUP LENSES over 90% PROTECTION—
MODEL 511 CSC

ALL EYE SAVERS LENSES ARE SHATTERPROOF • OPTICALLY CORRECT • INSTANTLY REPLACEABLE *T. M. REG.

©T. M. REG.

WATCHEMOKET OPTICAL CO., INC., PROVIDENCE, R. I.

In Canada: Levitt-Safety Limited, Toronto 12, Montreal 1
In South Africa: Keip Brothers, Johannesburg, South Africa
In Scandinavia: Uppsala Optiska Industri, Uppsala, Sweden

Working Eyes KEEP Working...



When **eye**
SAVERS stand guard!

Light, attractive and safe . . . Watchmocket's D-LUX goggle
gives *sure* eye protection.

For more information call your local distributor or write direct.

WATCHMOCKET OPTICAL CO., INC.
PROVIDENCE • RHODE ISLAND



IN CANADA • LEVITT-SAFETY LIMITED, TORONTO 12, MONTREAL 1



Your Visitor's Eyes Are Safe...

when **eye**
SAVERS stand guard!

Light, attractive and safe...
Watchmocket's METHASPEC goggle
gives sure eye protection.
For more information call your
local distributor or write direct.

WATCHMOCKET OPTICAL CO., INC.
PROVIDENCE • RHODE ISLAND



IN CANADA • LEVITT-SAFETY LIMITED, TORONTO 12, MONTREAL 1

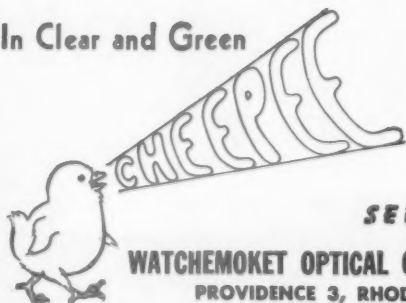
SAVE WITH CHEEPEE



**THE LOWEST COST
ONE-PIECE, CLOSE-FITTING,
ACETATE, QUALITY GOGGLE**

Lens surface unaffected by manufacturing process.

In Clear and Green



Fits over most glasses.
Exceeds Federal specifications for
resistance to breakage,
and optical quality.
Weights less than 1 ounce.

SEE YOUR ^{eye} DEALER OR WRITE
SAVERS

WATCHMOKET OPTICAL CO., INC.,
PROVIDENCE 3, RHODE ISLAND

*In Canada: Levitt-Safety Limited, Toronto 12, Montreal 1
In South Africa: Keip Brothers, Johannesburg, South Africa
In Scandinavia: Uppsala Optiska Industri, Uppsala, Sweden*

REFERENCES

Personal Protection

National Safety Council:

Protective Clothing—Safe Practices Pamphlet 16.

Goggles—SPP 14.

Respiratory Protective Equipment—SPP

64.

Linemen's Rubber Protective Equipment

—SPP-PUB.

Fiber Rope—SPP 6.

Purchasing for Safety—SPP 103.

Conservation of Personal Protective

Equipment—SPP 106.

How Industry Protects Workers' Eyes—

Safety Reprint Gen. 2.

Safety Eye Wear—Good Practice and Mal-

practice, by Hedwig S. Kuhn, M. D.—

National Safety News, Sept. 1950, p. 34.

Sun Glasses—Facts and Fiction, by Col.

Victor A. Byrnes (MC)—National Safety

News, Jan. 1951, p. 51.

Vision and Accidents, by N. C. Kephart

and Joseph Tiffin—National Safety News,

Oct. 1950, p. 50.

Your Hands and Feet, by Thomas B.

Davidson—National Safety News, June 1949,

p. 28.

They'll Wear Clean Respirators—National

Safety News, Dec. 1950, p. 32.

When Can We Stop Guessing About

Safety Belts? by C. W. Rose—National

Safety News, Oct. 1948, p. 104.

American Standards Assn. Codes:

Protection of Heads, Eyes and Respira-

tory Organs—Z22-1938. (Handbook H24, National

Bureau of Standards.)

Women's Industrial Clothing—L17-1944

Series. (American War Standards.)

Protective Occupational (Safety) Cloth-

ing, L18-1944 Series. (American War

Standards.)

Protective Occupational Footwear (Men's

and Women's)—Z41-1944 Series. (American

War Standards.)

Identification of Gas Mask Canisters—

K13.1-1950.

Sellstrom Recommends These Eye and Face Protectors

No. 364 — Depend-on Shield with replaceable window. Offers complete face protection, greatest possible comfort, built to withstand real punishment, regulation helmet headgear, abundant ventilation, top-grain leather sweatband, 6-3/16" x 15" clear cellulose acetate window .040" or .060" thick. Brass wire window for hot jobs if desired.



No. 4002—Lightweight glasses for grinding, chipping and general safety use. 47 m/m (45 x 48 m/m) drop oval lenses. Rhodium-plated optical steel frame, plastic covered temples, wire screen side shields. Furnished with 1.25 or 6.00 Diopter clear hardened lenses.

sellstrom
MANUFACTURING COMPANY

More Than 200 Eye and Face Safeguards
622-C N. Aberdeen St., Chicago 22, Ill.



THE FACE THAT STA SAFE PROTECTS!

He Could Be YOUR Worker!

Yes, he could even be YOU! But no matter who he is, he knows that the StaSafe face shield he's wearing is proven assurance against possibly serious injury. The wide, clear-

vision front provides full face protection against flying particles. Lightweight for comfort—sturdy for protection. There's a StaSafe face or eye shield to fit your need!

A Feature Only StaSafe Offers!

When properly adjusted, the new StaSafe Hinged Offset headgear gives you face shield comfort plus a secure fit. The double adjustment for head contour is as simple as turning the knob on your radio.



Number 5 half-dome face shield in the off face position.



Open Hearth Shield with steel band.



Number 9 lightweight eye shield.

These are but a few of the many StaSafe face and eye shields available to you. Complete information is contained in the StaSafe Bulletin No. Send for it NOW!

STANDARD SAFETY EQUIPMENT COMPANY

232 W. Ontario St.

Chicago 10, Illinois



SAFE-T-LINE

APPROVED PROTECTION

FOR EYES, HEAD and HANDS

SAFE-T-SITE GOGGLES

Patented improved method of ventilation greatly lessens fogging. The cups snugly conform facially. The over specs are designed for added comfort over prescription spectacles.

SAFE-T-HARD

Super tempered lenses made of clear, colorless, ground and polished glass, hardened in accordance with Federal specification requirements.

SAFE-T-WELD FILTER

Plates and lenses are carefully checked for quality and scientifically tested in accordance with Federal specification requirements.

"RAYFLEX" (Anti-Glare) FILTER PLATES

2 x 4 1/4 and 2 x 4 1/2 and lenses 50mm diameter—the utmost in welding efficiency and comfort. The metal-coated outer surface is durable—reduces eye strain and body fatigue—cooler to the eye—permits greater visibility—increases production. Available in all shades for all types of welding.

Write Today for Catalogue of Complete Eye & Head Protection.

MODERN GLASS PROCESSING CORP.
1545 SCHAEFFER STREET
BROOKLYN 27, N. Y.

DON'T SAY "GOGGLES"... SAY "EYEGARDS"
YOU CAN PAY MORE... BUT YOU WON'T
GET BETTER EYE PROTECTION!



THE ORIGINAL CHAMPION
EYEGARDS
WITH 10-WAY VENTILATION
BEST THING NEXT TO YOUR EYES

You can give your men the "best" in eye protection without paying premium prices by getting Eyegard goggles. There's extra comfort in them because the super-light plastic is molded to form-fit the face... greater protection because the goggles are impact resisting... extra ventilation through three large vents at side of cup and seven additional vents around the lenses. Cool and fog-free. With all these superior features, they cost no more than ordinary goggles. Next time you order, get Eyegard goggles, and save the difference! Write for free catalog.



No. 31 Grinders and Chippers Goggles



No. 335 Welders Coverspec Goggles

AMERICAN INDUSTRIAL SAFETY EQUIPMENT COMPANY
3501 LAKESIDE AVENUE
DIVISION OF THE BURDETT OXYGEN COMPANY • CLEVELAND, OHIO

WHY-

is Fendall head and eye protection equipment better?

HOW-

can you reduce costs and get the finest head and eye protection equipment ever offered?

WHEN-

can you get this better Fendall protection equipment? Must you wait, or can you get IMMEDIATE shipment?

Get your answers from Fendall before you buy another Goggle, Face Shield or other protective equipment. Write today!



FENDALL COMPANY
4631 N. Western Ave.
Chicago 25, Illinois

Foot Protection

(From page 76)

Wood soles are used for extreme conditions of heat, dampness, oil, acids or caustics underfoot. They are popular in steel mills, foundries, and other places where hot operations are carried on. They also afford protection against nails, broken glass, scrap metal, and other sharp objects.

Wooden-soled shoes can be obtained with steel toe caps or with guards which cover toes and insteps.

Foot Guards

Where unusually heavy objects are handled, feet may need more protection than is provided by shoes with reinforced toes. For such work, foot guards of heavy gauge, flanged and corrugated metal are obtainable.

The guards are strapped on over the shoes and protect the instep as well as the toes.

With the flange resting on a firm floor surface, foot guards should stand an impact of at least 300 foot-pounds without being dented sufficiently to damage the shoe underneath or injure the foot.

Foot guards are also made with soles of rubber or calked steel to minimize slipping hazards.

Combination shin-foot guards, with an aluminum alloy shin protector hinged to the foot guard, are available.

SIMPLIFY YOUR GAS MASK EQUIPMENT WITH THE NEW ACME 3-IN-1 FACE PIECE



Now—you can have chin-style, chest-style or hose-mask protection with ONE Acme No. 6 Face Piece.

This new Acme development makes it possible for workers to use any type of protection the job requires—without an extra face piece for each type of equipment.

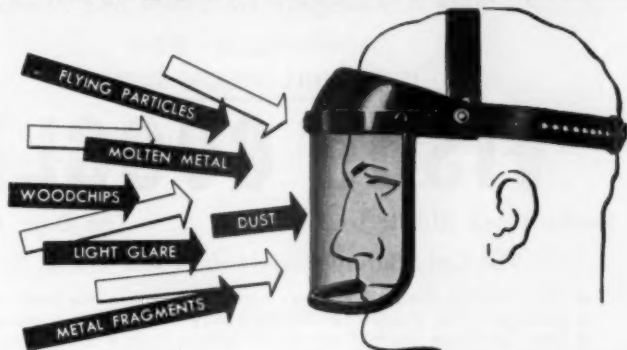
New descriptive bulletin tells complete story on advantages provided by Acme No. 6 Full-Vision Face Piece. Write for it today.

ACME PROTECTION EQUIPMENT COMPANY

3037 West Lake Street Chicago 12, Illinois

National Safety News, March, 1951

JACKSON TYPE J-1 EYESHIELD



JACKSON TYPE J-1 EYESHIELD

PROTECTS EYES AND FACE

- IN METAL FINISHING •
- METAL POURING
- SPOT AND FLASH WELDING •
- WOODWORKING
- MANY OTHER OPERATIONS •

Available in clear
and in Three Shades
of Green, Visors are 4,
6 and 8 inches deep

Few ounces of weight give pounds of protection against many industrial hazards. Jackson J-1 Eyeshields weigh only 5½ ounces, have saved thousands from serious injuries and countless expense. They help to keep production flowing in many industries.

Jackson Products, Warren, Michigan

JACKSON TYPE J-1 EYESHIELD



SOLD EVERYWHERE BY SAFETY SUPPLY DEALERS AND WELDING SUPPLY HOUSES

SAFETY
PRODUCTS
for
INDUSTRY



Welding Goggles

Welding Helmets

Safety Spectacles

Protective Clothing

Write for NEW Catalog •

GLENDAL OPTICAL CO.

232 Liberty Ave.

Brooklyn, N. Y.



AT THE SHOW:
See Ben Schwartz

Does your present safety goggle give your workers
All these Advantages? For Safety and Comfort?

Introducing the NEW
JONES FULL VISION SAFETY

VISOR GOGGLE

PAT. PEND.



Shatter-Proof Plastic Lens

Fits Over Eyeglasses

The Only Safety Goggle with ALL THESE EXCLUSIVE FEATURES!

- New Visor Top Shades Eyes from Overhead Light
- New 100% Full Visibility for Greater Safety
- New One-Piece Shatter-Proof Plastic Lens
- Fits Over Large-Frame Eyeglasses
- New Visor Head-Band Suspension for Comfort
- Replaceable One-Piece Plastic Lens
- New Down-Angle Lens for Clearer Vision
- Increased Impact Strength
- No Struts or Frame to Obstruct Vision
- No Fogging—No Pitting
- Close Fitting for Long Wear
- Safely Non-Flammable
- Optically Correct
- No Glare, Distortion, or Reflection
- Neat, Smart, Modern Appearance
- Light, Cool, Comfortable. Economical to Use.

PLAY SAFE and DON'T DELAY—ORDER YOUR VISOR GOGGLES TODAY!

Manufactured By

125 CATLIN AVE.

JONES AND COMPANY

RUMFORD 16, RHODE ISLAND

"In Work and Play—Visor Goggles Are the Safe Way"

SKI GOGGLES

INDUSTRIAL SAFETY GOGGLES

SUN GOGGLES



stop lens waste
with
TUF-COTE

Cut your purchasing costs
to one seventh

Safety lenses last 7 to 15 times longer against weld spatter and grinding wheel pitting when TUF-COTE treated. TUF-COTE is a microscopic layer of glass-like substance that resists the high temperature sparks that cause pitting. Any glass lens can be treated. We can treat your lenses or give you any type or brand of lens, TUF-COTE treated. We also supply treated prescription lenses to order. TUF-COTE is clear, optically perfect.

TUF-COTE may be ordered from Bausch & Lomb distributors, American Optical Co. branches, and the following firms:

- Georgia**
Southeastern Optical Co., Inc., Atlanta
- Illinois**
Universal Safety Equipment Co., Chicago
- Indiana**
Midwest Fire & Safety Equipment Co., Indianapolis
- Kentucky**
Orr Safety Equipment Co., Louisville
- Michigan**
Argus Supply Co., Detroit
Averill Equipment Co., Detroit
Seco Safety Products Co., Detroit

- Minnesota**
Continental Safety Equipment, Inc., St. Paul
- Missouri**
Safety Incorporated, St. Louis, Kansas City
- New York**
Safety Optical Service, Rochester
Watson Co., Buffalo
- Ohio**
Helmerichs Supply Co., Cleveland
Williams & Co., Inc., Cincinnati, Cleveland, Columbus, Toledo
White Haines Optical Co., Columbus
- Pennsylvania**
Guardian Safety Equipment Co., Philadelphia
Williams & Co., Inc., Pittsburgh
- Rhode Island**
Welsh Manufacturing Co., Providence
- Tennessee**
Industrial Supply Co., Chattanooga
- Virginia**
Southeastern Optical Co., Inc., Richmond
- Wisconsin**
Louis F. Pagel Co., Milwaukee
- Canada**
Bausch & Lomb Optical Co., Montreal, Toronto
Industrial Safety Equipment Co., Ltd., Ebbw Vale, Ont.

**WALLACE
OPTICAL COMPANY • INC**
1025 Brush Street
Detroit 26, Michigan

TWO SELLSTROM WELDING LEADERS

No. 243 One-Piece Fibre Helmet, with all improvements, including the patented adjustable headgear, standard 2" x 4 1/4" window, front changing lens retainer. A recently designed helmet, but in point of sales it is among our leaders.



No. 420 Featherweight Welding Goggles. Adjustable to fit any face. This has been one of our big leaders since 1940, when it was first offered. Renders outstanding service wherever there is welding. Weight less than three ounces.

sellstrom
MANUFACTURING COMPANY
More than 200 Eye and Face Safeguards
622-C N. Aberdeen Street Chicago 23, Ill.

Safety Suggestion: Tear Out and File for Ready Reference

**Scott Air-Pak
Safety Breathing
Equipment
is sold by:**

ALBANY, NEW YORK—Kiddo Lux Products Co.
APPLETON, WISCONSIN—Auto Body Works, Inc.
ATLANTA, GEORGIA—Southeastern Fire Ext. Sales, Inc.
BILLINGS, MONTANA—Big Horn Supply Co.
BIRMINGHAM, ALABAMA—Safety Engrg. & Supply Co.
BOSTON, MASS.—General Equipment Corp.
BUFFALO, NEW YORK—American Alliance Co.
CHARLESTON, W. VA.—Safety First Supply Co.
CHICAGO, ILLINOIS—Protective Equipment Co.
CINCINNATI, OHIO—Sealair Supply Co.
CLEVELAND, OHIO—Safety First Supply Co.
COLUMBUS, OHIO—W. E. Brantner Co.
DAYTON, OHIO—Dayton Safety Supply Co.
DENVER, COLORADO—“Max” Galley Co.
DETROIT, MICHIGAN—Wm. F. McGraw & Co.
DETROIT, MICH.—National Safety Products & Service Co.
DULUTH, MINNESOTA—W. F. & R. S. Mars Co.
EAST ORANGE, N. J.—E. H. Watta
FORT SMITH, ARK.—Interstate Fire Equipment Co.
GREENSBORO, N. C.—Southern Oxygen Co.
HAMDEN, CONN.—O. B. Maxwell Co.
HORTONVILLE, WIS.—Otis Fire Equipment Co.
HOUSTON, TEXAS—Allied Safety Equipment Co.
KALAMAZOO, MICH.—Safety Services, Inc.
KANSAS CITY, MISSOURI—U. S. Safety Service Co.
KINGSPORT, TENN.—Southern Oxygen Co.
LOS ANGELES, CALIF.—E. D. Bullard Co.
LOS ANGELES, CALIF.—Dickson Safety Products Co.
LOUISVILLE, KENTUCKY—Orr Safety Equipment Co.
MILWAUKEE, WIS.—Protective Equipment Co.
MINNEAPOLIS, MINN.—C. L. Ammerman Co.
MINNEAPOLIS, MINN.—Minnesota Fire Equipment Co.
NEW YORK, N. Y.—E. H. Notta, E. Orange, N. J.
OMAHA, NEBRASKA—Anderson Fire Equip. Co.
PHILADELPHIA, PA.—Guardian Safety Equip. Co.
PHOENIX, ARIZONA—Thunderbolt Sales Corp.
PITTSBURGH, PA.—Safety First Supply Co.
PORTLAND, OREGON—American Elkhart Co.
RENO, NEV.—Nevada Fire Extinguisher Service
ROANOKE, VIRGINIA—Southern Oxygen Co.
ROCHESTER, N. Y.—Rochester Safety Equip. Co.
ST. MARY'S, PA.—C. H. Yelzer & Son
ST. LOUIS, MISSOURI—Safety, Inc.
SALT LAKE CITY, U.—Universal Safety & Fire Equip.
SAN FRANCISCO, CALIF.—E. D. Bullard Co.
SEATTLE, WASHINGTON—L. N. Curtis Co.
SEATTLE, WASHINGTON—American Elkhart Co.
SYRACUSE, NEW YORK—Syracuse Supply Co.
TOLEDO, OHIO—Safety First Supply Co.
TULSA, OKLAHOMA—Guardian Safety Equip. Co.
UTICA, NEW YORK—Link Fire Extinguisher Service
WASHINGTON, D. C.—Southern Oxygen Co.
WHEELING, W. VA.—Safety First Supply Co.

**The safe, low cost
way to deal with
ANY Breathing
Hazard —**

Scott Air-Pak

Reduce shutdown time, lower maintenance costs with greater safety to personnel — by placing Scott Air-Pak Self-Contained Breathing Equipment in your plant.

Scott Air-Pak delivers cool, confidence-inspiring air (not oxygen), eliminating unnecessary hazards—especially in the presence of petroleum vapors.

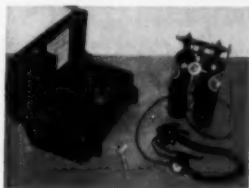


Low operating cost; used by hundreds of industrial plants to give comfortable, complete protection for routine inspection or emergency work in toxic atmospheres.

**EASIER Oxygen Treatment — with
the Scott DEMAND Inhalator**

In first-aid room or “on the spot” oxygen can be given safely and economically, with the Scott Demand Inhalator. Low-cost oxygen unit featuring “demand” principle, with

constant flow available “at the touch of a button.” Lowest breathing resistance of any oxygen breathing equipment. Easy to use—no adjustments of any kind. No special training needed.



**For “Where to Buy” Information,
See List of Scott Distributors at Left
of Page.**



**SAFETY EQUIPMENT DIVISION
SCOTT AVIATION CORP.**

211 ERIE ST., LANCASTER, N. Y.

CANADA: SAFETY SUPPLY CO. BRANCHES IN ALL PRINCIPAL CITIES
EXPORT: SOUTHERN OXYGEN CO., 157 Chambers St. New York 7, N. Y.

**EXPORT AGENT (Except Canada)
Southern Oxygen Co., Inc.**

**WASHINGTON REPRESENTATIVE
Palmer & Kline**

CANADA

Safety Supply Co. Branches:
MONTREAL, QUEBEC
HALIFAX, NOVA SCOTIA
VANCOUVER, B. C.
EDMONTON, ALBERTA
OTTAWA, ONTARIO
WINNIPEG, MANITOBA

**SEE THE SCOTT AIR-PAK AND SCOTT DEMAND INHALATOR ON
DISPLAY AT THE GREATER NEW YORK SAFETY SHOW, APRIL
3-6, 1951—BOOTH No. 47 & No. 48, HOTEL STATLER, NEW YORK**

THE *Right* PROTECTION



is DOCKSON GOGGLES

BE SAFE against sparks, dust particles, chemical splash and fumes, glare and injurious rays with DOCKSON GOGGLES in more than 20 models and a full line of modern lenses for all hazards.



BE COMFORTABLE with smooth-sitting DOCKSON GOGGLES. Excess weight is engineered out.



BE ECONOMICAL, get longer use from DOCKSON GOGGLES. "BUILT FOR BETTER SERVICE".



THERE IS A DOCKSON DISTRIBUTOR NEAR YOU—Let us send you his name and our complete catalog of DOCKSON HEAD AND EYE PROTECTION.



NEW PERMANENT NON-SLIP



FIRM-GRIP *Genuine* NEOPRENE LATEX GLOVES

✓ Permanent NON-SLIP on all 5 Fingers and Palm. Highly efficient embossed surface is *integral part* of glove.

✓ Impregnable to ACIDS, CAUSTICS, OILS.

✓ Curved FINGERS for Comfort and Easy Use.

No. 5740-5 LONG GAUNTLET Length 14", Gauge .030 to .040 Sizes 9, 10, 10½, 11, 12

No. 5720-5 LIGHT DUTY Length 10½", Gauge .017 to .020 Sizes 7, 7½, 8, 8½, 9, 9½, 10, 11

★ Write for sample and prices

SEIBERLING
LATEX PRODUCTS CO.
AKRON 9, OHIO

200-5th Ave., New York
Merchandise Mart, Chicago

ONE PIECE LEATHER APRONS give more protection!

COLONIAL GARMENT KIP SPLITS

- WILL CUT ANY SIZE ONE-PIECE APRON
- FULL CHROME TANNED LEATHER FOR HEAT RESISTANCE
- PEARL COLOR—WEIGHT TO SUIT—WELL TRIMMED

Mr. Safety Engineer: We do not manufacture safety clothing, but you can specify one-piece leather aprons made of Colonial Garment Kips from your supplier.



COLONIAL TANNING CO., INC.

Glove Leather Division

730 W. VIRGINIA STREET MILWAUKEE 4, WISCONSIN

(Advertisement)

New Safety Hats Keep Workers Safe, Happy

Lightest weight, most resilient molded safety hats yet developed are the Hard Boiled Hats and Caps made of impregnated Fibreglas. Little publicized is the cap pictured—developed especially for mines, but also widely used by steel erectors.



Molded "glass" crowns are available in either hat or cap styles to meet the needs and specifications of all industries. In addition to passing by a wide margin standard tests for resistance to impact, moisture and electrical shock, the material will not support a flame, and in radiation tests proved to be 10% cooler to wear.

Unlimited choice of solid, permanent molded colors is available—with many colors available at no extra cost.



Ribbed Crown Adds Strength

New, also, is the aircraft grade aluminum alloy Hard Boiled Hat, which passes standard drop tests, and is safe to wear except where electrical shock is a hazard.

All models feature interchangeable, quick-change, hammock-headband assemblies that are universally sized, to cut user inventories.

For other details, write E. D. Bullard Company, 275 Eighth Street, San Francisco 3, California. Distributors in principal cities.

(Advertisement)



B-1 Air Line Hood

Provides a fresh atmosphere to work in. Made of featherweight, translucent, easy-to-clean Vinylite for comfort and freedom of body movement. Full-vision, non-fogging facepiece. Protection against nuisance dusts and annoying fumes. State of California Division of Industrial Safety approved.

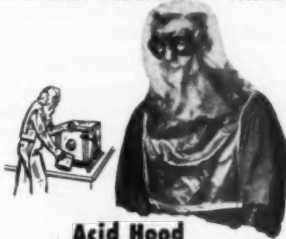
BULLARD EVERYTHING IN SAFETY - BULLARD



Respirator Dust Hood

No interference with normal breathing. Large filter area admits plenty of air while keeping out dust and fumes. Featherweight hood is made of easily cleaned, translucent Vinylite. Quick change filters and wide vision shield. Two types: for metal fumes—for nuisance dusts. U.S.B.M. approved.

BULLARD EVERYTHING IN SAFETY - BULLARD



Acid Hood

Guards worker against all splashing liquids. Made of high-resistance Vinylite—tough, featherweight, translucent for comfort and wearability. Extra eye protection by snug-fitting, acid-proof, rubber frame goggles with non-shattering laminated lenses. Efficient coverage of head, shoulders, and chest.

"Everything in Safety" for Industry

Makers of the famous Hard Boiled Hat. First Aid Kits and supplies; Respirators, Canister and Hose Masks; Safety Belts and Clothing.

E. D. Bullard Company

275 Eighth St., San Francisco 3, Calif.

Distributors in Principal Cities

EVERYTHING IN SAFETY

EVERYTHING IN SAFETY

EVERYTHING IN SAFETY

EVERYTHING IN SAFETY

EVERYTHING IN SAFETY

EVERYTHING IN SAFETY

EVERYTHING IN SAFETY



Blasting Helmet

Full safety from injurious dusts, sand, or shot with maximum comfort. Outer hood of Neoprene impregnated Fibreglas. Zippered inner cape permits quick removal. Built-in head protection, ample headroom, no-draft air feed, full-vision facepiece.

BULLARD EVERYTHING IN SAFETY - BULLARD



Compressed Air Purifiers

Supply clean air to helmet and hood wearers to guard health and comfort. Protect air-driven equipment and spray guns from wear and corrosion. High efficiency air filtering cuts rejects on all spray operations. 3 sizes—capacities: 10 to 150 cubic feet per minute of free air.



Safety Clothing



Examples of safety clothing and other items of personal protective equipment.

SAFE CLOTHING may be any type of clothing that is clean, in good repair and suitable for the job. Almost any garment offers some protection against minor hazards.

Safety clothing refers to specific garments designed for certain hazardous jobs where ordinary work clothes do not provide sufficient protection.

Proper fitting is essential in all work clothing. Long, loose sleeves and neckties may get caught in machinery. Trouser cuffs may cause tripping.

Clothing soaked in oil or solvent may be ignited or may cause skin irritation. Cleanliness is also an important aid to morale.

Some companies furnish laundered overalls, coveralls, aprons, smocks, and other garments in occupations where extreme cleanliness is necessary because of the product or because of health-hazardous processes.

Exposures that require special protective garments include moisture, high temperatures, hot or corrosive substances, flying particles, sharp or rough edges, etc. (See chart on page 8 for types of garments and materials for various hazards.)

The following are essential in all types of work clothes:

1. Adequate protection.
2. Comfort and freedom of movement.
3. Durability.
4. Appearance.

Appearance of clothing is particularly important with women employees but men are not indifferent to it.

Standards. Specifications established by the Federal Government have provided widely used standards for many years. During the war the American Standards Association approved a series of "War Standards for Protective Occupational Clothing—Series L18." These are to form the basis of permanent standards.

These specifications cover protection against sparks, molten metal, infra-red and ultra-violet rays, and limited impact forces. Details of pattern, design, workmanship and range of sizes are also included.

Protective Materials

Asbestos is the preferred material for protection against intense heat, and flame. Many garments are made of this material, including complete suits for fire-fighting and rescue work.

Airplane crash fires have focused attention on more effective protection for fire-fighters and rescue crews. These suits use not only insulating material against conductive heat but also a radiation barrier of reflective material, such as aluminum foil. Suits of this type have been developed by the U. S. Air Force.

Wool clothing should be worn under asbestos garments where intense heat is encountered.

Leather of various grades is used for protective garments. Chrometanned leather affords protection from sparks, molten metal splashes, and infra-red and ultra-violet rays. Leather, however, deteriorates under continued exposure to heat. For se-

vere exposure, asbestos should be used.

Leather provides protection against limited impact. Padded leather or fabric aprons and hard fiber or metal protectors for the abdomen absorb much of the force of hard blows.

Leather reinforced by metal stitching or wire staples is resistant to cuts and abrasion.

Impervious materials of many types provide protection against dust, vapors, mists, moisture and corrosive liquids. They are useful in handling materials which would cause dermatitis or burns. This type of material includes rubber, neoprene and plastic films and fabric coated with them.

Rubber is widely used in the chemical industry because it resists acids, caustics and other corrosive substances. Garments of rubberized fabric are used when handling low concentrations of acids and non-caustic liquids and for protection against weather. Rubber's high dielectric strength makes it useful for protective equipment where electricity is used.

Neoprene has numerous applications in safety equipment. It forms a tough, durable film resistant to oils and solvents as well as to acids and alkalis. It has high dielectric strength.

Flame-resistant duck, a lightweight fabric, is quite strong and will outwear ordinary material used in work clothes. For protection against extreme heat, asbestos should be used.

Water-resistant duck is recommended in exposures to water and non-corrosive liquids. It combines strength and durability with light weight.

Plastics are finding many uses in safety equipment. Some of the synthetic resins are rolled or calendered onto fabrics. Others form strong and pliable films for safety clothing.

Flameproofing for cotton garments is a desirable precaution in some occupations. Newer flameproofing materials are said to withstand repeated washings.

Welder's Clothing

Protective clothing is as much a part of the arc welder's equipment as the helmet and goggles. Cotton shirts and dungarees worn in warm weather can be ignited quite easily and the protection of chrome-tanned leather may avoid serious burns and loss of valuable time.

Welders' leather garments include overalls, pants, chaps, aprons, jackets, sleeves, gloves, mittens and spats.

Garments should be of good quality leather, solidly constructed. Fastenings must prevent gaping and should be so designed that the wearer can get out of the garment quickly. There should be no turned-up cuffs or other projections to catch hot metal. Pockets should be equipped with flaps.

DUPOR no. 46
U.S.B. of M. approved for type A
and lead dusts, 46 sq. in. twin filters.

\$275

Keep the air you breathe
**Clean as a
Whistle...**

WITH

**COVER'S
U.S.B. of M. APPROVED
Respirators**



DUPOR no. 24

U.S.B. of M. approved for type A
dusts, 24 sq. in. twin filters.

\$275



DUPOR no. 40

U.S.B. of M. approved for type A
dusts, 40 sq. in. twin filters.

\$275

LIGHT WEIGHT • GREATER VISIBILITY • NO BLIND SPOTS • CONTROLLED BREATHING
FACE CLOTH FOR PERSONAL SANITATION • PANORAMA VIEW • EXCLUSIVE PATENTED FEATURES

Write for full information on the complete line of DUPOR
Respirators and H. S. Cover Gas-Tight, Fog-Proof GOGGLES

H. S. COVER
SOUTH BEND, INDIANA

GARDWELL Products

PERSONAL PROTECTION

... from Recommended Materials!

GARDWELL ASBESTOS MITTEN



No. 134

This is a reversible type mitten, reinforced on both sides with asbestos and lined with 12 ounce Canton flannel—14" length. Like all GARDWELL Mittens, it has double sewn seams. Made from Underwriters Grade Asbestos cloth. This is just one of a complete line of Asbestos Mittens in various lengths, with or without reinforcement, etc.

GARDWELL ASBESTOS GLOVE



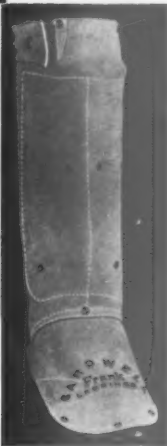
No. 164

This pair type asbestos glove is made from Underwriters Grade Asbestos cloth, lined with 8 ounce Canton flannel, is 14" long.

Other Asbestos Gloves are available in various lengths, with reinforced palm, thumb and fingers, as desired.

Tell us your requirements.

GARDWELL LEGGING



No. 500

This "Frank" Knee Legging is made from chrome leather, reinforced in front with heavy canvas and fibre as protection against splash, has flare over foot, is easy to adjust.

"Frank" Leggings are also made from fireproofed duck and Underwriters Grade Asbestos—in spat and hip lengths.



Gardwell Type "T" Aluminum Hat



Die stamped in one piece with ribs for added strength this hat is ideal for Ship Builders, Oil Workers, Dam Workers, etc., as well as for every industry where head hazards exist. Suspended headband provides maximum shock absorption. Quickly adjusted to any head size.

GARDWELL APRON

No. 332



Chrome leather split-style apron is very popular with welders. Size shown is 24x38".

Has adjustable leather neck and waist straps, also two adjustable leather straps on each leg.

Aprons are available from fireproofed duck, Underwriters Grade Asbestos and Steel Studded leather—in bib and waist styles.

Our catalog shows many other items of Safety Clothing and Equipment. Send for a copy today.

Safety CLOTHING AND EQUIPMENT Co.

DESIGNERS AND MANUFACTURERS

7016 EUCLID AVENUE

CLEVELAND 3, OHIO

PHONE ENdicott 1-1722

A Brand New Home for **B. F. McDONALD CO.** THE WEST'S SAFETY HEADQUARTERS

- ★ NEW LOCATION
- ★ NEW FACILITIES
- ★ ENLARGED CAPACITY



READY ABOUT
MARCH
15

VISIT US

at our new Los Angeles home, 5721 West 96th St. Plan to see our new plant the next time you're out this way. We're handy to International Airport.



Here's the new Los Angeles home of the B. F. McDonald Company, and it's everything you'd expect from the firm that has sparked the progress of safety-on-the-job for 19 years! Now manufacturing, research, development and administration will be carried on under one roof — in a plant more than double the area of the old McDonald plant. This plant means stepped-up capacity, too... a growing output to keep pace with your increased demand for the finest in safety equipment.

B. F. McDONALD COMPANY

Manufacturers and Distributors of Industrial Safety Equipment

1255 HOWARD ST.
SAN FRANCISCO.

5112 S. HOOVER ST.
LOS ANGELES 37, CALIF.

2321 MILAM ST.
HOUSTON

HOME OF THE SAFETY STARS FOR 1951:

McDonald SAFE-T-HAT • McDonald DUST-PRO RESPIRATOR • McDonald RAIN-PRO KIT
McDonald EYE-PROTECTING LENS • McDonald RAILROAD WORKMAN • McDonald SNAKE-BITE KIT



FLY-FRONT DRESS



ways to keep a woman happy on the job



COVERALL
(Powder Suit)



WOMEN'S BETTER WORK WEAR



JUMPERALL



JUMPERALL



SLACK SUIT

Women like them because they're so smartly tailored. You'll like them because they eliminate clothing hazards, stand up to hard wear and hard laundering. Shop-test any style at our expense. A note on your company letterhead will bring a sample garment in any size without cost or obligation.

RANGLES MANUFACTURING CO.,

OGDENSBURG, N. Y.

STA SAFE

From Top to Bottom . . .

4 LEADERS IN CHEMICAL PROTECTION

Where there's a need for worker protection, there's a StaSafe garment to fit!



GRA-LITE

For jobs requiring maximum chemical resistance and wear, StaSafe GRA-LITE is the recommended leader. GRA-LITE offers a tough, resilient fabric—as much as 40% lighter than other impervious fabrics.



MAROON

StaSafe MAROON is lightweight and long-wearing. Designed to offer protection against oils, many acids, caustics and solvents. It is also resistant to flame! Less expensive than GRA-LITE, StaSafe MAROON is a practical garment for jobs where body protection is important. Like GRA-LITE, MAROON garments are offered to you in many variations of design.

BLACK
NEOPRENE

Still another leader in protective fabrics . . . StaSafe BLACK NEOPRENE quality is equal to that of MAROON. But because BLACK NEOPRENE garments are mass-produced and offered only in Small, Medium and Large, they supply the demand for a less costly protective clothing.

AIR-
LITE

For more information, write for the StaSafe Garment Bulletin No. 510.

You can order StaSafe garments *specially designed* for your particular needs! Just write giving complete details of your problem. Make use of the StaSafe research and designing department . . . make it your laboratory for safety guidance!

A fourth leader . . . AIR-LITE garments are made of electronically sealed, unsupported vinyl film and are designed to fulfill the need for extremely lightweight protective clothing. Ideal for laboratory use and work not requiring a heavier protective fabric.

Any of the above materials available in aprons!

STANDARD SAFETY

EQUIPMENT COMPANY

232 W. ONTARIO • CHICAGO, ILLINOIS

WOMEN'S DEFENSE UNIFORMS!

The War's Answer for the Safest Work Clothes

PATENTED
SLACK-ALLS



Every needed detail from almost any conceivable angle has been incorporated in our new Slack-Alls which are as follows:

1. One-piece fitted front eliminating dangerous belts.
2. Concealed zipper front.
3. Functional Drop-Seat that is concealed.
4. Tapered trousers . . . a safety must.
5. Important small tucks at waist and shoulder, both front and back, that give a perfect fit.
6. BI-SWING action back for maximum comfort.
7. Notch collar, breast inverted pleated pocket, action pleated sleeves. Inside trouser pocket.

STYLE 1214

Ramsey Slack-Alls were recognized during World War 2 as the most scientific one-piece suit for women working in Industrial Plants . . . Our new improved 1951 Slack-All has been styled having foremost in mind the following all important features:

- SAFETY FIRST • SMARTNESS
- PRODUCTION • DURABILITY
- UNIFORMITY • LOW PRICES

We also manufacture bib-overalls, work dresses, smocks, separate slacks and shirts, and Du Pont Fabricoid protective aprons.

SEND FOR SAMPLES AT ONCE

America's Largest Exclusive Manufacturers of Defense Uniforms

RAMSEY SPORTSWEAR CO., Inc.

19 W. 36th STREET

1917 - 1951

NEW YORK 18, N. Y.

SAFETY IS NOW A "BUY IT WITH CARE"



No. 644-4

Steel-Grip Gauntlet Glove. Steel ribbon reinforcement over tough chrome leather strips. A tough glove for tough jobs. Specify 644-2 for 2" band style. (Many other types of Steel-Grip Gloves and Mittens.)



No. 13475

The Nation's No. 1 Welder Glove. Entire back one piece construction. Wool heat breaker inside. No burned out seams. Finest special tanned chrome leather.



No. 148 Apron

Chrome leather bib type apron. Made in 30", 36", 42", 48" and 54" lengths. (Also in asbestos and flameproofed duck.) Many special styles, including steel reinforced aprons.

Safety Apparel purchases must now be made with the greatest care. Industrial's 41 years' experience in solving Industry's Safety Problems insures more adequate protection for your workers at a time when correct protection spells the difference between production gains and losses. Protecting vital manpower means having vital manpower when it is needed most. Industrial's correct design means freedom of movement and comfort in action and results in further production gains. Insist on quality Steel-Grip Industrial Safety Apparel and you will be sure of better, longer-lasting safety in the days ahead. Let us help meet your production quotas... safely.

INDUSTRIAL GLOVES COMPANY

1735 Garfield St., Danville, Illinois

(In Canada: SAFETY SUPPLY CO., Toronto)

Some of the many INDUSTRIAL Safeguards that advantageously meet your specific needs



No. 14169

Open End, Grain Leather, Medium Size Finger Guard. For use on small punch press work, buffing, burring, grinding, etc. Flexible leather with elastic webbing back. Eliminates minor, but costly, finger injuries. Also made in split leather, capskin, neoprene drill and a variety of special designs. Steel sewing or steel reinforcing may be required on your particular hazard. Write for circular. Sizes for men and women.



Woven-Gards

Better hand protection at amazingly low cost. Hand pads, mitts and sleeves made of a new long wearing safety material. Extremely oil absorbent. Resist abrasion and cutting. Porous weave makes them excellent for handling lower temperature jobs.



No. 200-14

Asbestos gauntlet glove. Lined or unlined. Quality safeguards from sturdy, close-woven Underwriters' Grade asbestos cloth. Seamless, one piece construction. Roomy, airy, comfortable. Standard 11", 14" and 23" lengths. Many special types of asbestos gloves and mitts are also manufactured.

No. 461 Wool Coat
No. 466 Wool Pants

Excellent quality Industrial Wool. Any length and size desired. We manufacture a complete line of safety clothing in wool, asbestos, chrome leather and flameproofed duck.





From Start...

to Finish!

● KIMBALL Safety Clothing is carefully fashioned by experts who know how to achieve the greatest degree of comfort and safety in every type of safety garment. Whether of pure wool, leather, asbestos or fire-resistant cotton, each KIMBALL garment is guaranteed to give satisfaction in the use for which it is designed. There is a KIMBALL garment for almost every industrial hazard.

OTHER KIMBALL SAFETY PRODUCTS

Eye Protection:	Steel Stitched.	Cotton.
Spectacle Goggles,	MITTENS:	LEGGINS and SPATS:
Welding Goggles,	Welder's, Asbestos,	Leather, Asbestos,
Composition Goggles,	Steel Stitched.	Flameproofed Cotton.
Sideshields.		
Hand Protection:	Body Protection:	APRONS:
GLOVES:	CLOTHING:	Leather, Asbestos,
Welder's, Asbestos,	Wool, Flameproofed	Flameproofed Cotton.

KIMBALL SAFETY



Kimball

**SAFETY PRODUCTS
COMPANY**

9310 WADE PARK AVENUE
CLEVELAND 6, OHIO

KLEAR-VU SAFETY ACCESSORIES

*mean Safety
First—Last
and Always*

PERFECT RESISTANCE TO DUST, FLAME,
ACID, OIL AND WATER!

PRICED RIGHT!

STYLED ATTRACTIVELY, LIGHT IN WEIGHT,
EASILY CLEANED!

Thousands of leading safety engineers . . . men who know that minimum risk means maximum production . . . insist *only* on Klear-Vu Safety Caps, Safety Aprons and Safety Arm Guards to protect workers.

Maintain Peak Production—Protect *Your* Workers — Boost Morale — Reduce Overhead —

WRITE TODAY FOR SAMPLES
AND PRICES!



KLEAR-VU

PRODUCTS CO., INC. LINCOLN BOULEVARD, MIDDLESEX, N. J.



JOMAC GLOVES

save 90c per man per workday
in handling sheet metal

A large manufacturer of kitchen appliances* tested all types of gloves for handling sheet metal. Jomac proved superior to any other glove tried. The company standardized on Jomac. Cost records show Jomac is now saving the company 90c per man per workday.

* Name on request.

JOMACS ARE

Washable • Reversible • Flexible • Heat-resistant
Protect against heat, cold, rough and sharp edges

C. WALKER JONES CO.

6135 N. LAMBERT STREET • PHILADELPHIA 38, PA.

SINCE 1883

TANNERS OF
QUALITY LEATHERS

LICHTMAN

J.L.&S.

LEATHERS

NEWARK, N. J.

Reg. U. S. Pat. Office

J. LICHTMAN & SONS

NEWARK 5, N. J.

For Best Results

INSIST ON

LICHTMAN

Heat Resistant

LEATHER

For Protective Clothing

Leg Protection

PROTECTION for the legs is required in certain industries against the hazards of hot materials, corrosive substances, blows from sharp tools or heavy objects, and bites of poisonous snakes.

Protective garments vary from waist-length leggings to spats. For



Foot guards and shin guards are obtainable separately or in combination.

some occupations the extra protection of the longer types is desirable.

Materials commonly used are:

1. Asbestos for protection against molten metal, severe heat and heavy sparks.
2. Chrome-tanned leather for less severe exposure to splashes and sparks.
3. Fire-resistant duck to ward off light splashes and sparks.
4. Rubber, neoprene and plastic for work with acids, alkalis and hot water.
5. Lightweight alloys or fiber for protection against blows from axes, adzes, and heavy objects.

Men who work with molten metal use leggings designed to be removed instantly in an emergency. The leggings should have flares to protect the instep, and should be free from projecting buckles and clasps.

Chrome leather, when new, is less resistant to hot metal splashes and sparks. With use it acquires a tougher surface. It has been recommended that the operator keep out of the line of fire as much as possible until the garment has been broken in.

Poisonous snakes are a hazard in some regions. Construction, petroleum, public utility and farm workers are among those most exposed. Bites are invariably below the knee and high boots are frequently worn. More effective protection is provided by fiber leggings. Coverings of water-proofed duck protect the leggings against long wet grass.



Wheeler Protection Pays more safety per dollar

APRONS

Bib, split-leg, waist, and V-types. All sizes available in U.G. asbestos, flame-proofed duck, fiberglass, chrome leather, and permaproof cloth.

ARM PROTECTORS

Chrome leather, or wool. Plain or steel studded leather reinforcement. Fastens on arm with three adjustable straps, or with zippers.

ASBESTOS FIREMEN

U.G. light basket weave asbestos. Six styles offered in one, three, and five piece suits. Each style neatly packed in handy metal carrying case. Used for fighting fires, fire rescue work, and emergency repairs.

BLANKETS AND CURTAINS

U.G. asbestos, flame-proofed duck and jean cloth, fiberglass, permaproof cloth, and 100% reprocessed wool. 6' x 6' standard size, packed in carrying case. Other sizes cut to order. Grommets supplied on curtains as specified.

CAPES AND SLEEVES

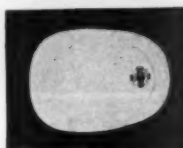
With or without bibs. Made in chrome leather for Welder's. Also available in U.G. heavy basket weave asbestos. Small, medium, and large sizes.



GLOVES U.G. herringbone weave asbestos. 11", 14", & 23" lengths. Lined or unlined; plain or lea. rein.



GLOVES Chrome, horse split or grain, and carpincho leather. 11" & 18" lengths. Lined or unlined; plain or steel studded lea. rein.



HAND PROTECTORS With wrist slot, or thumb-type. Chrome lea. with plain or steel studded rein. Asb. backing on some styles.



MITTENS Reg. thumb, rev. thumb, or one-finger styles. U.G. herr. atb. 11", 14", & 23" lengths. Lined or unlined; plain or lea. rein. Double, & triple thick asb. mittens also available.

HELMETS

U.G. light basket weave asbestos, with wire, fiber, or "hard boiled" head frames, all having adjustable, padded head bends. Screened, and pyrex glass vision pieces; for head, neck and shoulder protection. Large selection of styles featuring exclusive Wheeler design.



CLOTHING

U.G. asbestos in tropic-weight herr., light basket, heavy basket, and herr. weaves; flame-proofed duck and jean cloth; chrome lea., permaproof cloth, and wool. Coats 30", 44", and 50" lengths, cut to chest size, with "free-swinging" raglan sleeves. Pants to match, cut to waist size.



LEGGINGS

U.G. asbestos, flame-proofed duck, or chrome leather. Available in either Patented Leg-Safe style (as shown), or Spring Knee style. On and off in a jiffy! Half Leggings, and Hip Leggings, also obtainable.



SLEEVES

U.G. asbestos, flame-proofed duck, fiberglass, chrome leather, and permaproof cloth, 12", 18", and 24" lengths.



SPATS

U.G. asbestos, flame-proofed duck, and chrome leather. Have adjustable ankle and instep straps.



CONSULT A WHEELER DISTRIBUTOR
FOR REAL SAFETY SERVICE

Wheeler PROTECTIVE APPAREL, INC.
Write for our new Catalog No. G98

224 W. HURON ST. • CHICAGO 10, ILL.





B R E C K

FOUR WAYS TO PROTECT SKIN FROM INDUSTRIAL DERMATITIS

BRECK pH7 PROTECTIVE CREAM protects the hands against harsh materials such as cutting compounds, printer's ink, lime, paint and tar. Easily applied, it can be removed with Breck Hand Cleaner or soap and water.

BRECK WATER RESISTANT CREAM guards against the action of water and water solutions. It forms a stable protective film over the skin and is effective for three or four hours.

BRECK HAND CLEANER helps to eliminate the use of harsh, gritty hand cleaners, turpentine and petroleum solvents. Because it is mild, yet effective Breck Hand Cleaner leaves the hands clean and soft.



BRECK WORK CREAM is used after exposure to degreasing materials. It substitutes fatty materials for the natural skin oils keeping hands soft and pliable.

A convenient dispenser top is available for the pound jar of Breck pH7 Protective Cream on request.

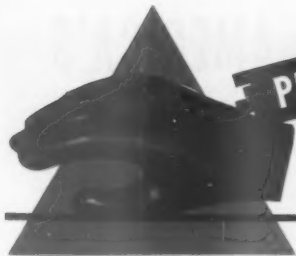
JOHN H. BRECK, INC. • MANUFACTURING CHEMISTS • SPRINGFIELD 1, MASSACHUSETTS
NEW YORK • SAN FRANCISCO • OTTAWA, CANADA

PERFORMANCE PERFECTION?

there's proof in production with . . .

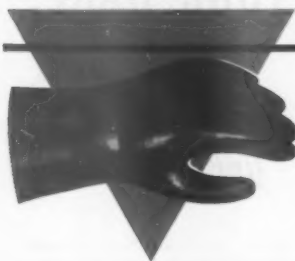
HOOD

Gloves!



Model 4703—Full Neoprene coated, knit wrist style used in all types of general industry. Liquid proof, curved fingers, no seams on working surface.

Model 7701—Fully Neoprene coated with (4") cuff for use where dipping operations, spray or splash are not too high.

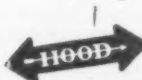


Yes, employee's hands in Hood Industrial Work gloves are sure of two very important benefits—ease of handling and protection. And both these vital benefits have been proven before the gloves leave the factory by Hood's famous "on the job" testing in many industries.

Shown here are just two of the many models available for your employees whatever your business may be . . . models that reflect the enviable reputation that Hood has built in more than 50 years. Investigate the advantages of Hood gloves today and you will soon see why experienced personnel in *all* industries "put on a pair of Hood gloves" when they want more efficiency, longer wear, extra comfort, important economy and more protection.

"Put your employee's hands into a safer glove"

Write today for the colorful new catalog showing the entire Hood line.



for NEW Safety **PLUS**



HOOD RUBBER CO. Watertown, Mass.



For Safety
Guard-Ann Hat
U.S. PATENT NO. 2,070,000

Combines utmost protection and style. Exclusive patented features found in no other hat.

Write for Free Sample or Order Direct from us

\$13.50 dz.

CHIC MAID HAT MFG. CO., Inc.
630 HIGH STREET
BUFFALO 11, N. Y.

HERE'S LOW COST FOOT PROTECTION!

STASAFE
TOE CLIPS



Fits any square toed shoe. Designed for permanent attachment or intermittent wear.

These heavy gauge metal caps reinforced for greater resistance to impact can be worn by any worker who can wear shoes. Low Priced Toe Clips make foot and toe protection possible for all workers.

**TOE CLIPS
OFFER
PROTECTION
COMFORT
LOW PRICE**

WRITE FOR BULLETIN NO. 262

STANDARD SAFETY
EQUIPMENT COMPANY

232 W. ONTARIO • CHICAGO, ILLINOIS

PROTECT the Working Girl with proper Safety Headwear



No. 1050 HOLLYWOOD VISOR CAP
Visor for warning signal against machinery. A real safety cap. Made of washable seersucker.



No. 120 HOLLYWOOD TURBAN
"All-Purpose" Hair Protector. Made of cotton netting. Washable—adjustable. No exposed hair.



No. 1100 SAFETY-TOPPER
Unique styling covers hair completely. Attractive and comfortable to wear. Available in cotton net or seersucker.

Write for Illustrated Catalogue Showing Complete Line of Safety Headwear for Women.

Hollywood Turban Products Co.
1104 S. WABASH AVE.
CHICAGO 5, ILL.

Hands and Arms

FINGERS, hands and arms are involved in more than one-third of all reported industrial injuries. No parts of the body are more exposed to cuts, scratches, bruises and burns in the course of the day's work.

Finger movement is necessary for practically all work and this makes protection difficult. For the forearm semi-rigid protectors are often practicable.

Finger stalls, gloves, mittens, and hand pads are made of a variety of materials to protect hands against cuts, abrasions and hot objects.

Some of the common materials and their uses are:

Canvas, the least expensive and least durable material, is satisfactory for light work. Duck and terry cloth are also used for handling objects which are not excessively hot.

A strong, closely woven variety of terry cloth is used for "hot mill" gloves.

Leather is more expensive and more durable for most jobs. It offers greater protection against cuts and abrasions.

Chrome leather is used where there is exposure to sparks or molten metal. However, no animal or vegetable material will stand continued excessive heat.

Metal staples in gloves, mittens and hand leathers give increased protection when handling sharp or rough objects. Metal-studded gloves should not be worn around electric apparatus.

Asbestos is used where hands must be protected against extreme heat, as in steel mills, heat treating plants, welding, galvanizing, glass manufacturing, etc.

Asbestos gloves may be obtained unlined or with wool lining for added comfort and protection.

Rubber, neoprene and other synthetic rubbers, and plastic films are suitable for chemical laboratories and plants where acids, and other corrosives are handled.

Neoprene and plastic are particularly useful where petroleum products and some organic solvents are handled. However, synthetic films vary in their resistance to different chemicals and the manufacturer should be consulted about protection in specific exposures.

Fabric coated with rubber, neoprene or plastic are used for light cleaning operations. They offer greater protection against abrasion than uncoated fabric.

When rubber or synthetic gloves are worn for long periods, a lightweight cotton liner is desirable. If no liner is available talcum powder should be shaken into the gloves before wearing.

Rubber and asbestos gloves should be long enough to come well above the wrists. If long flaring gauntlets are worn they should be equipped

—To page 111

AMERICA'S No. 1 MILITARY WEAPON IS IN YOUR CARE!

—are you
keeping him
under cover?



Every year industrial hazards among plant personnel take their toll in lost production. What can you do about it? Cover your workers with MILBURN PLY-GARB and PLYGLOVS, the protective clothing that is today helping workers everywhere stay on the job.

Today, more than ever, American industry must maintain production at peak levels. To do this, employees need complete protection from industrial hazards and diseases that may interfere with their productivity. By preventing absenteeism you prevent production leaks and high compensation costs. MILBURN PLY-GARB 100% vinyl plastic fiber woven coveralls, shirts, trousers, jackets, aprons, suits, capes, hoods, lab coats, and leggings — and PLYGLOVS — are job-tested to withstand the most commonly used acids and solvents; yet are light in weight, comfortable to wear.

Write, wire, or phone today for FREE SURVEY that will show how you can make your plant a better, safer, healthier place in which to work — make your operation more profitable.

THE
MILBURN
COMPANY

3246 East Woodbridge • Detroit 7, Michigan

Also makers
of PLY CREAMS to guard
against industrial Dermatitis



**complete
PROTECTION AGAINST**

ACIDS & ALKALIS • OILS & GREASES

highly resistant to
SCUFFING • SCRAPING • SNAGGING
stays FLEXIBLE when cold
does NOT get STICKY when hot

Sawyer's exclusive saturation-coating process ensures perfect bonding of 100% DuPont Neoprene Latex with top quality base fabric because it coats both sides and bonds right through the fabric.

You'll find Sawyer's Frog Brand industrial suits, coats and aprons the best buy on the market. Same styles in Rubberized or Oiled fabrics. Colors: Black or Yellow. Write for illustrated catalog.

The H. M. SAWYER & SON CO.
Cambridge 41, Mass.

National Safety News, March, 1951

Save Time and Money

WITH
**WASHABLE, FEATHERWEIGHT
VENTILATED, INEXPENSIVE**



Licensed under
U. S. Pat.
No. 2,223,332

**STA SAFE
KOOLPADS**



How can you save time and money by using KOOLPADS? Here's the StaSafe answer!

When sweat rolls from your forehead streaking glasses and causing discomfort, valuable time is lost in wiping it away . . . time that could be saved by letting KOOLPADS absorb the moisture before it reaches your lenses.

KOOLPADS are an inexpensive way to help you by helping your workers, but remember . . . KOOLPADS can be rinsed, further reducing their initial low cost to you. And you'll find still more savings by using KOOLPADS, because when dampened, they increase efficiency of the wearers.

Order your supply NOW for the hot months ahead . . . or for more information about KOOLPADS, ask for Bulletin No. 508!

STANDARD SAFETY EQUIPMENT COMPANY

232 W. Ontario St.

Chicago 10, Illinois

THE NAME to look for on Work Gloves



ECONOMY—RUGGEDNESS

Industry everywhere applauds David's new "Wing-King" glove (left) for its extra wear, safety features and comfort. Its wing thumb, with no seams to wear out, spells real economy. Wing thumbs available on ALL David's leather gloves at no additional cost.

NEW CATALOGUE

Our new 1950-51 Catalogue, showing over 160 industrial work gloves, now yours for the asking. See why David's is the "Goliath" of work glove lines.

Write direct to

DAVID'S GLOVES, Inc.
DEPT. NS, BOX 657, SPRINGFIELD, OHIO



OUTWEARS SEVERAL PAIRS OF ORDINARY GLOVES!



TIGER GRIP is the glove that has proven its true worth on the job. It gives the worker greater protection because its specially knitted material contains hundreds of "loops" that cushion the hand. Soft and comfortable—cool in summer, warm in winter. By actual test it **OUTWEARS** several pairs of ordinary woven fabric gloves.

"A BETTER WORK GLOVE FOR EVERY PURPOSE"



NO. 2396A—STEEL REINFORCED LEATHER GAUNTLET
Maximum protection plus long service. Chrome tanned cowhide of uniform thickness throughout. Reinforced with ribbons of durable steel. Entire glove securely sewn throughout with steel wire.

ADVANCE manufactures a complete line of cotton and leather gloves, welders gloves, wire-stitched gloves—a complete line of safety and protective clothing for every industry.



*"A Better Work Glove
for Every Purpose"*



All Purpose Shoe—
Style 200



Steel Mill Shoe—
Style 250



Chemical Plant Shoe—
Style 1230



Oil Refiner's Shoe—
Style 203



Foundry Man's Shoe—
Style 202



Meat Packer's Shoe—
Style 215



All-Purpose Leather
Boot—Style 400



Hot-Foot Sandal—Fits
over regular shoe



Shower Sandals—For
Men and Women

Wooden sole shoes have a definite safety protection in certain industrial operations.

DAVENPORT wooden sole shoes are resistant to heat, water, dust, oil, and acid. They give proper foot arch support and complete protection with comfort. Used on wet, cold, slippery or intensely hot floors, wooden soles are superior to leather, composition, or rubber soles. Wooden sole shoes cost much LESS, and wear much LONGER.

DAVENPORT wooden sole shoes are available in many styles for men and women—in sizes 5 to 12—to meet individual industrial problems. "PRO-TECTO" Safety Steel Toe of high carbon steel optional.

Let us send you our
complete catalog.

STHAMMER SHOE CO.

Est. over 50 years
DAVENPORT 1, IOWA



10 TIMES HIGHER ABRASION RESISTANCE...
standard abrasive wheel test



4 TIMES HIGHER SNAG RESISTANCE...
standard needle test



MUCH HIGHER CHEMICAL RESISTANCE...
standard strip immersion tests
... than natural rubber or standard synthetics



**SURETY SURESEAL SYNTHETIC
RUBBER GLOVES**

**ADD UP TO SAFER HANDS, LONGER WEAR, LOWER
HAND PROTECTION COSTS.**

Ask for Surety's unique Glove Selector, the quick guide to the right glove material for your operations. Dept. S



Hands and Arms

(From page 108)

with locking devices to assure a snug fit about the wrists. Sleeves should be kept rolled down, leaving no skin exposed.

Metal mesh gloves are used in meat and other cutting. They should fit snugly.

Generally, gloves should not be worn when operating revolving machinery. An exception is buffing and polishing on high-speed lathes where parts become too hot to handle with bare hands.

Linemen's gloves. Rubber gloves worn by linemen and others engaged in electrical work are of a special type made to exacting specifications. They should be tested regularly and discarded when found worn, cracked or punctured.

For line work, overgloves of leather are worn to protect the rubber against damage.

Wrist and Arm. Gauntlets offer some protection to the wrist and arm protectors guard the forearm against light blows. The materials, depending on the protection required, include duck, wool, leather, rubber, plastics, and asbestos.

Protective Creams

Creams and lotions are often helpful in protecting the skin against irritants when safety clothing is not practicable. These products are made in water-soluble and water-resistant types, each in several grades for differing exposures.

Water-soluble creams are used for protection against cutting oils, paints, lacquers, varnishes, etc.

Water-resistant applications are used where the cutting oil, cooling lubricant, or other irritant has a water content of more than 10 per cent. These can be removed with soap and warm water.

To be effective, the coatings should be renewed frequently. They are not intended for protection against highly corrosive substances.

Eye Conservation

(From page 74)

Filter Lenses. The following shade numbers are listed in National Bureau of Standards Handbook H24:

No. 3—For protection against glare or reflected light, spot welding operations, light brazing.

No. 4 or No. 5—Light acetylene cutting and burning.

No. 6—General acetylene welding, or welder's helper or set up on arc welding.

No. 8—Heavy acetylene welding or cutting, or very light arc welding.

No. 10—Arc welding up to 250 amperes.

—To page 114

PROTECT EMPLOYEES

against

UNNECESSARY HEAD INJURY



Here, at last, is a light weight, plastic safety helmet, resistant to 3,000 volts of electricity, and by actual test, able to sustain 80 foot pounds under ball impact. What's more, the Paramount safety helmet is light as a feather—comfortable, waterproof, adjustable to head sizes (6½ to 8), and with enough clearance space between head and helmet crown to cushion and absorb intense impact. Genuine leather suspension band has long life and stands up under years of use.

For Use in Mines

A miner's lamp bracket, adaptable to every type of lamp, can be furnished either on helmet or cap. Being entirely a non-conductor of electricity, this is the safest miner's helmet available.

Winter Lining

For increased warmth, a two piece lining with a flannelette facing is provided. The lining is sanforized, warm, and is made in a full range of head sizes.

As the producers of millions of M1 Army helmet liners, the famous Cairns-Paramount Firemen's helmet, the Army, Navy and Civilian Air Corps crash helmet for jet pilots and other air corps personnel, the Army Quartermaster Tank Corps helmet, we are specialists in this field and offer you greater protection with lighter weight.

The Paramount helmet and cap are produced under one or more of these patents—No. 2-420-522, No. 2-423-076, and other patents are pending.



ORDER THRU YOUR DEALER OR, WRITE DIRECT TO

PARAMOUNT RUBBER COMPANY

Synthetic Rubber & Plastic Engineers & Mfrs.

10401 Northlawn Avenue

Detroit 4, Michigan

HOgarth 3050

LEADING MANUFACTURER OF SAFETY GARMENTS

HOLCOMB PROTECTION

PRODUCTS INCLUDE

GLOVES

SPATS

HELMETS

MITTENS

ARM

PROTECTORS

SLEEVES

HATS

PANTS

COATS

MASKS

APRONS

FOUNDRY

LEGGINGS

FOUNDRY

BLANKETS

FINGER

PROTECTORS

JUMPER

SUITS

OVERSHOES

CURTAINS

KNEE PADS

HAND PADS

MADE IN ASBESTOS — LEATHER — FIREPROOFED DUCK

HOLCOMB SAFETY GARMENT CO.

118 North Jefferson Street

Chicago 6, Illinois

Head Protection



Safety committee of a Permanente Cement Company plant wearing hard hats and displaying a safety trophy. Aluminum hats are not used around electricity.

PROTECTIVE HATS are needed on jobs wherever heads are menaced by falling objects. These hats are widely used in the mining, lumbering, construction, shipbuilding and petroleum industries, and for certain occupations in other industries.

Protective hats are also useful where there is danger of bumping the head against overhead structures.

Resistance to impact is the most important essential for these hats. They must also be fire resistant and impervious to moisture. Where contact with electricity is possible, the material should be non-conductive.

Types. A hat with a brim all the way around provides the most complete protection for the head, face, and back of the neck. For confined spaces where a brim might be in the way, the cap type may offer adequate protection.

Some models have brackets to support welding masks or miners' cap lamps.

Materials. Laminated plastic molded under high pressure is a widely used material. It is resistant to impact and to effects of water and oil. Dielectric strength is high.

Glass fiber impregnated with resin is a recently introduced material. It has a high strength-weight ratio, high dielectric strength and resistance to moisture.

Hats which glow in the dark, due to a phosphorescent pigment, are obtainable on special order.

Aluminum alloy meets all requirements except dielectric strength. Metal hats should not be worn where there is danger of electrical contact.

Weight. Not more than 14½ ounces for the complete hat is specified by the Federal Treasury Department. Procurement Division, in Spec-

ification No. 367A. The specification also lists several tests which hats must pass. These include moisture, impact and electricity.

The hard outer shell of the hat is supported by a cradle or hammock which keeps the shell away from the head and cushions it against blows.

Cradle and sweatband should be replaceable because of deterioration when exposed to perspiration for long periods. This is also important for sanitary reasons, especially when the hat is worn by more than one person. The shell can be sterilized by any of the common methods.

For cold weather a winter lining may be attached to the hat. This lining is made of water-resistant cloth to protect head, neck and ears.

Where the wearer may be exposed to strong winds on such locations as bridges and oil derricks, the chin strap is a useful accessory.

An eyeshield of transparent plastic can be attached to some types of hats. It is hinged under the peak and



Hat of washable blue taffeta for women workers. Snood is adjustable for varying amounts of hair. There is no inclination to tuft the hair in front. (Boyer Campbell Company)

lies flat against the peak when not in use.

Colors. With some manufacturers, hats are now available in seven standard colors—white, gray, red, green, blue, brown and black. Other colors are available on special order. Color is permanent because it goes all the way through the material.

Special colors are sometimes ordered to match the company's color used on vehicles, in advertising, etc. Others use distinctive colors and designs to designate the wearer's department or trade. This is important in large plants where certain areas are restricted to a few carefully selected employees.

For Women Workers

Woman's hair has always been a problem around moving machinery. Much effort has been expended in designing headwear that would be both protective and decorative.

Scalping injuries are likely to occur at points where the hair may come in contact with moving shafts, belts, pulleys and the like, or where enough static is produced by the machine to lift the hair.

Covering the machine may suffice in some operations but women who work around such machinery should wear caps which completely cover the hair. Hair covering is desirable also in the interest of cleanliness.

Hair coverings should be made of a fabric sufficiently durable to withstand regular laundering and disinfecting by commercial methods. Design should be simple so that pressing or ironing may be done by machine.

Caps should be provided in a sufficient variety of head sizes, or with a sufficient range of adjustment in the head size to fit all persons.

Flame-resistant material should be used near sparks or flame. Caps with peaks provide some warning before the head comes in actual contact with a moving object.

Hair nets or turbans, preferred by many women, are not considered sufficient protection around moving machinery.

No Cracked Heads in "Turtle Club"

Taking its name from one of the earliest exponents of using a hard shell to protect his head, "The Turtle Club" has been organized for persons whose heads have been saved from serious injury by the wearing of "hard hats."

Membership is free to successful applicants. Copies of the constitution and membership application blanks may be obtained from E. W. Bullard, 275 Eighth Street, San Francisco 3, Calif.

W. H. SALISBURY & CO.

MORGAN AT KINZIE STREETS

★ EST. 1855 ★

CHICAGO 22, ILLINOIS

MANUFACTURERS OF RUBBER PROTECTIVE EQUIPMENT
FOR LINEMEN AND OTHER HIGH VOLTAGE WORKERS

INTERLOCKING LINE HOSE



Completely surrounds the wire with a thick wall of rubber having high dielectric strength. Locks itself in place but is easy to apply or remove.

Sizes: $\frac{3}{8}$ ", 1", $1\frac{1}{4}$ ", $1\frac{1}{2}$ " inside diameter.

Lengths: 3', $4\frac{1}{2}$ ', 6'.

RUBBER INSULATOR HOODS



Used in conjunction with Line Hose to cover conductors as they pass over insulators. Inward extending flanges prevent accidental dislodgement. Compact construction. Convenient to handle.

CONNECTOR-END LINE HOSE



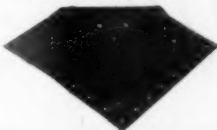
Standard Line Hose with built-on connector-end for joining to additional lengths or for covering enlarged wire taps, leads on stud type transformers, etc. Sizes same as standard line hose.

LINEMEN'S RUBBER BLANKETS



Indispensable for covering odd shaped equipment. Made of best grade rubber with long-life and high dielectric qualities. Sizes 36×36 " and 36×27 ". Also available with "Snap-Button" and eyelets.

SNAP-BUTTON RUBBER JACKETS



Highest quality small size rubber blanket, 22×22 ", equipped with Salisbury hard rubber button fasteners and used to cover dead ends or other similar hazards that require securely fastened protection.

LINEMEN'S TOOL BAGS



Non-metallic canvas bags properly shaped and constructed for safety in raising heavy tools and supplies to men on poles or other elevated places. Sizes 8×14 " or 12×16 " for tools and 7×48 " for line hose.

LINEMEN'S RUBBER SLEEVES



Protect the arms and shoulders from accidental contact with "hot" equipment. Held in place by adjustable rubber strap across the shoulders. Made in chromium plated molds to insure high voltage resistance, smooth surface and long life. Regular and extra large sizes.

NON-SPILLABLE P. B. COMPOUND POTS

Provide a safe and convenient means to carry insulating paint and brush. Being made of semi-hard synthetic rubber, they are non-conducting, non-breakable and are unaffected by the usual P. B. compound used.



LINEMEN'S GLOVE BAGS



Necessary for glove protection in storage and transportation and useful, when properly labeled, for personal identification. Made of heavy waterproof duck, sturdy and durable. Snap hook and "D" ring attached. Size 8 " wide, 15 " long.

LINEMEN'S RUBBER GLOVES

Best grade steam-cured gloves, carefully made to meet all standard specifications. Furnished in curved or straight finger style. Standard gloves are rated at 10,000 volts, 14×16 ", 18×18 " and 18×20 ".

15,000 or 20,000 volt gloves are available. All sizes and half sizes from 9 to 12.



RUBBERCUFF PROTECTOR GLOVES

Similar to our standard all-leather protector glove with the addition of a full-length molded rubber cuff. Rubber cuffs do not increase current creepage to the forearm. They prevent costly snags in gauntlets of linemen's rubber gloves which are required to extend beyond ordinary leather protectors. Furnished in several sizes to fit perfectly over rubber gloves.



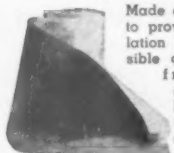
ALL-LEATHER PROTECTOR GLOVES



Worn over rubber gloves to protect them from injury. Made of specially tanned Grade "A" buffed horsehide and carefully designed to fit perfectly over rubber gloves. Soft and pliable under all conditions. Do not become slippery when wet. Band-top or gauntlet styles. All sizes.

A DEVICE FOR EVERY ELECTRICAL HAZARD

SWITCHBOARD MATTING



Made especially to provide insulation from possible ground in front of switchboards or other electrical equipment. Rated at 40,000 volts and meets the A. S. T. M. specifications. Widths 24 ", 30 ", 36 ", 48 ". Any length.

MISCELLANEOUS EQUIPMENT

Static Resisting Rain Coats
Electric All-Rubber Rain Coats
Industrial Rubber Rain Coats
Linemen's Rubber Boots
Linemen's Rubber Hats
Cotton Liner Gloves
Marshall Tagging Device
Elbow Length Sleeves

Slotted Side Blankets
All-Rubber Cable Bandages
Blanket Canisters
Blanket Clamp Pins
Linemen's Sleeve Containers
Cable End Test Cops and Separators

★ SEND FOR CATALOG L-4 ★

ELECTRICIAN'S INSULATING STOOLS



Designed to provide a safe, low platform for men with hazardous tasks in substations, underground vaults and power plants. Size $18 \times 12 \times 8$ " high. Guaranteed.

Eye Conservation

(From page 111)

No. 12—Arc welding of more than 250 amperes, atomic hydrogen welding.

No. 14—Carbon arc welding.

Goggles are available in shades up to No. 8; higher numbers in helmets.

Heat-treated cover lenses can be provided to protect filter lenses against pitting and scratching. Heat-treated filter lenses are also available.

Face Shields

Face shields of transparent plastic give eye and face protection on

such jobs as metal sawing, working with chemicals, buffing, sanding, light grinding, bottle manufacturing, etc.

They should not be used for welding, heavy grinding or other operations where resistance to severe impact is necessary. Shields may be worn over spectacles.

Wire mesh screens are used for pouring low-melting point metals, as in babbiting. The mesh stops splashes of metal and allows better ventilation than a solid shield.

Sweatbands, worn across the forehead in hot, humid locations, help prevent fogging of goggles and spectacles.

Non-fogging compounds, applied to the lenses, help to keep the glass clear.

Hoods and Helmets

Hoods (loose-fitting) and helmets (rigid frame) of various types are worn to protect the face and head against hazards which do not involve heavy impact.

These are equipped with windows but goggles may be worn underneath. If toxic fumes, dusts or gases are encountered, an air line should be supplied. As these hoods are rather warm, an air line may also be desirable for comfort.

Fabric hoods protect the wearer from nuisance dusts, paint spray, etc.

Fire-resistant duck and asbestos hoods are used for varying degrees of exposure to heat, as in furnace and burning operations and fire fighting.

Hoods and helmets of rubber, neoprene, plastic film, and fabric impregnated with rubber or plastic provide protection against sprays and splashes of acids, caustics, organic solvents, etc. Not all of these materials are resistant to all exposures and the manufacturer should be consulted.

Administering the Program

Supply and Distribution. In some companies the supply is kept in the main supply department. In larger

—To page 116

a *Safe-Hi* Construction Belt



"cushions the fall"

When a falling man hits the end of his lifeline, unless there is a means of absorbing the sudden shock, the jolt can cause serious injury or death even if the belt and lifeline hold.

A SAFE-HI Shock Absorber Belt is the answer to this problem.

The UNOLYN Shock Absorber in SAFE-HI Construction Belts elongates permanently under loading. It s-p-r-e-a-d-s the shock, stops the man promptly but holds the impact within safe limits for man, belt and lifeline.

Safe-Hi

Shock Absorber Belt for window cleaners...saves the man by saving the building anchor.



See your safety dealer or write

SPECIFY

Safe-Hi
PRODUCTS

ROSE MFG. CO.

1731 Arapahoe St., Denver, Colo.

• SAFETY BELTS • LADDER SHOES
• POLE GRIPS • WALL GRIPS • CHISEL GRIPS
• LIFELINES & LANYARDS

Do you have
a "Pet"?



We will immediately design or duplicate any belt in any quantity to your exact needs.

Submit your sketches and specs to:

**INDUSTRIAL SAFETY
BELT CORPORATION**

51 CHATHAM ST.
PITTSBURGH, PENNA.

Bashlin's Linemen's Choice

SAFETY EQUIPMENT



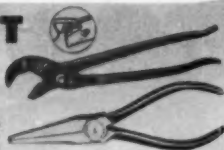
Semi-Floating Safety Tool Belt - 20 Styles - Full Range of Sizes. Stock.



Tool Belt with or without holster with tape sling, hammer loop, snap. Stock.



Tool Buckets - Canvas, 11-lbs top, leather bottom 15" - 18" Depth. Stock.



Chan-Nel-lock gripping tongue and groove Pliers. Stock.



Lightweight Climbers - climbers with removable gaff. Stock.



Chippewa Boot - 6 to 11 and 12 with 16" top. With or without Padding. Stock.



Safety Straps - 24 Styles Finest Leather, Bashlin Craftmanship. Stock.



Clear Grip-Ease E Grip Plier Handles, 9"-8"-7"-6"-480 Pliers. Stock.



Vacuum Grip Pliers perfect balance easy cutting. Stock.



W. M. BASHLIN COMPANY
GROVE CITY 3, PA.

BUHRKE

For Construction and Maintenance Safety

SCOT: SNA



SAFETY HARNESS



TOOL BAGS



TOOL BUCKETS



NEW INSULATED BUCKET HOOKS



SAFETY BELTS

GLOVE CARRIERS

TOOL POCKETS



SAFETY SNAP



ROPE SLINGS LANYARDS



SAFETY FLAGS



EDGED TOOL GUARDS

NEW
LINEMAN'S ULTRA-FLEXIBLE NYLON SAFETY STRAPS AND CLIMBER STRAPS. ROT PROOF AND MOISTURE PROOF. CANVAS AND WEB PRODUCTS. WRITE FOR DETAILS!



IT'S
KLEINS



Safety engineers recognize the importance of quality on hazardous jobs. When it comes to equipment on which life depends—safety straps and belts, climbers and grips, pliers and tools—there can be no compromise with quality.

Nearly a century of experience is back of Klein equipment for linemen and electricians. Today the name Klein is recognized for highest quality wherever such equipment is used. When life is at stake, only the best is good enough. In tools and equipment, this best is Kleins—"since 1857."

ASK YOUR SUPPLIER

Foreign Distributor: International Standard Electric Corp., New York

If you have not received a copy of the new Klein Pocket Tool Guide, write for one. It will be sent without obligation.



Since 1857



Mathias KLEIN & Sons
Established 1857
Chicago, Ill., U.S.A.
3308 BELMONT AVENUE, CHICAGO 16, ILLINOIS

Hearing Aids

DEAF persons can work with normal efficiency and safety in many jobs. In other occupations, however, deafness may be a handicap and a hazard to the individual and his fellow workers. Salvaging the skills of persons with defective hearing is an important phase of vocational rehabilitation.

In most cases, deafness is not merely loss of amplification. Some persons may have more difficulty in hearing high tones and others in hearing low ones.

Many persons with varying degrees of deafness have been helped by hearing aids. For best results, these devices require careful fitting and usually service at intervals after fitting.

The American Medical Association maintains a list of hearing devices which meet essential requirements.

Audiometric examinations are useful in measuring progressive loss of hearing. When hearing has suffered from exposure to excessive noise, an employee may be transferred to quieter surroundings.

Ear Protection

Against Noise. In boiler shops, on construction jobs, operation of pneumatic hammers, etc., excessive noise may cause fatigue and distraction.

Reducing noise levels at the source is not always practicable. For such jobs, ear plugs, or stopples, of correct design have reduced the sound level by 35 to 45 decibels. Ordinary conversation can be carried on while wearing them.

Ear stopples of soft rubber and plastic are available in small, medium and large sizes. They should be cleaned daily, and sterilized if transferred to another worker.

Eye Conservation

(From page 114)

plants a supply of goggles and repair parts may be kept in each shop.

Some operate goggle carts with a trained attendant who makes the rounds, cleaning, adjusting, repairing and replacing goggles on the job.

Fitting goggles. Prescription glasses should be fitted by a refractionist but fitting plano goggles also requires training and experience. Many optical companies offer instruction in this work. Unless goggles are fitted properly there will be considerable opposition to the eye protection program.

Cleaning and sterilizing. Both goggles and spectacles become smudged and facilities for cleaning them on the job are desirable. Stations which dispense cleaning liquid and tissues encourage frequent cleaning.

Goggles worn continuously by one person should be cleaned and sterilized at frequent intervals, as well as those reissued to other employees.

Safety Belts and Harness

WHEREVER men work at high levels or in closed spaces where the air is irrespirable or doubtful, safety belts and harness with life lines are needed.

Occupations in which safety belts are used routinely or occasionally include: linemen, window cleaners, structural steel and bridge workers, crane men, shipbuilders, forestry workers, miners, mechanics and painters.

In selecting equipment, two types of use must be considered—"normal" and emergency.

Normal use involves the comparatively light stresses applied during regular work. These stresses rarely exceed the static weight of the user.

Emergency use means stopping a man when he falls. This may subject every part of the belt to an impact loading many times the weight of the wearer.

Types of Equipment

Several types of belts and harness have been developed for various occupations. Most familiar of these are the lineman's belt and safety strap and the window cleaner's belt.

Belts of these types are built for extra severe use. Belting material and hardware have both received much study. The belts are usually serially numbered and dated so that records of age and condition may be kept.

For many occupations a lighter and less cumbersome belt will provide ample protection against falls. These may be of the simple body type or the harness type. Both have dees to which a lanyard is attached. The harness type has the advantage of distributing the shock over shoulders, back and waist instead of merely at the waist.

Body harness with lanyard attached expedites the rescue of workers overcome by gas or vapors or injured in confined spaces. Such equipment should be worn by workers entering tanks, bins and underground passages where such hazards may exist.

Wherever the work requires a supplied-air respirator, harness and life line should also be used.

If long free falls are possible, the harness should be designed to distribute the impact force over the legs and chest as well as the waist.

The longer the free fall, the greater the impact force exerted upon the harness and lanyard. It is therefore advisable to tie off the line as short as the necessary movements of the worker will permit.

Materials. Both leather and webbing belts are furnished by most manufacturers.

Well tanned and well oiled leather is not easily attacked by most chemicals but it should not be left in con-

tact with them. Regular cleaning after use is important.

Leather $\frac{1}{4}$ inch thick and $1\frac{1}{2}$ inches wide will have an ultimate strength of about 500 pounds. This is adequate for lifting a man out of a tank or bin.

Webbing will stand more heat than leather, and when soaked in water will dry out in its natural condition. Friction buckles can be used with webbing, avoiding the loss of strength at buckle holes.

Belts intended to check a fall demand strength proportionate to the possible distance of fall and weight of body. A 2" by $\frac{1}{4}$ " leather belt would probably arrest the fall of a window washer at 6 feet. It might break at a 10-foot fall.

For a comfortable margin of safety, a window cleaner's leather belt should be at least 3" by $\frac{1}{4}$ ", or the equivalent.

Special types of webbing are available for certain uses. It can be wax treated to resist paint and mildew. For the chemical and petroleum industries webbing impregnated with neoprene resists acid conditions.

Quick release from a safety belt may be desirable in case of fire. Petroleum workers, for instance, use belts with a quick release buckle which can be disengaged instantly by a single motion of the hand.

Belts for some occupations contain loops and pockets for light tools.

Collapsible canvas tool buckets are also needed on some jobs so the worker may have his hands free while climbing. Guards should be used for edge tools.

Shock absorbers incorporated in harness and lanyards reduce the severity of impact. This decreases both the possibility of injury to the wearer and failure of the equipment.

Lanyards. A $\frac{1}{2}$ -inch manila rope has an ultimate strength of about 2,600 pounds.

Research is developing improved materials for lanyards. Unolyn, a



The window washer's life depends upon his belt and the anchors on the window frames.

synthetic fiber of the nylon type has shown remarkable ability for absorbing impact force. It elongates with constant resistance up to five times the original length. At maximum elongation it has 75 per cent greater breaking strength than the draw load required to stretch it.

Care of Belts

Dirt should be brushed off carefully so as not to scratch the belt. A leather belt should then be washed with warm water and saddle soap or castile soap. It should be rinsed in clean warm water and allowed to dry in room temperature.

Leather belts should be treated with neatsfoot, castor, soybean or a compound oil, to prevent drying out, not a mineral oil. A leather belt should never be exposed to excessive heat.

Cotton or linen webbing belts may be washed in soapy water, rinsed and dried by moderate heat. They are not damaged by any temperature up to the boiling point of water. The manufacturer of the belt should be consulted about the dressing.

Life belts should be inspected before use by the employees wearing them. Every one to three months they should be carefully inspected by a trained individual.

Leather belts especially must be watched carefully for cuts or scratches on the skin side of the hide. A deep cut on the skin side warrants condemning the belt.

Fabric belts should not be used if the outer plies are cut or worn through. All belt hardware should be checked and replaced if it shows signs of wear. If the belt is riveted, each rivet should be examined separately.

Tail lines and life lines should be washed with mild soap and water and dried in circulating air. They should not be exposed to high temperatures. Rope should be kept in open coils and never bent sharply.

A Program That Will Save Eyes

1. Make periodic surveys of work areas for eye hazards.
2. Provide type of protection suitable for the job—goggles, shields, masks, hoods, etc.
3. Make provision for corrective goggles for those who need them.
4. Provide goggle-adjusting service and encourage employees to keep their goggles in adjustment.
5. Be sure that all those in the work area have goggles, including employees from other departments.
6. Encourage employees to report foreign bodies in the eye immediately for medical treatment.
7. Supervisors should wear goggles for their own protection as well as to set an example to employees.
8. Allow no visitors without eye protection.

Built for your safety and working comfort



SHORT BOOTS come in neoprene rubber to resist oil, grease and acids. Bar-Flex arch-supporting shanks, steel safety toes, Shock-proof Cushioned Insoles. Also Tempered Rubber for general use with cleated-type soles.



HIGH KWIK ARCTICS in all neoprene to resist oil, grease and acids. Your choice of regular cleated-type soles or new molded anti-skid soles.

U. S. Specialized Industrial Footwear has been developed as a result of years of working *for* and *with* industry.

If you are on your feet all day, the Bar-Flex soles give support under the arch; they can't sag. If you handle heavy loads, you'll want the safety of the Steel Toes. And these are only two of many specialized industrial features in U. S. Footwear.



BAR-FLEX SOLES REALLY SAVE ARCHES

Exclusive Bar-Flex soles are molded with extra bar cleats for solid arch support. Their cleated-type construction gives you added anti-slip safety down the whole length of your feet.

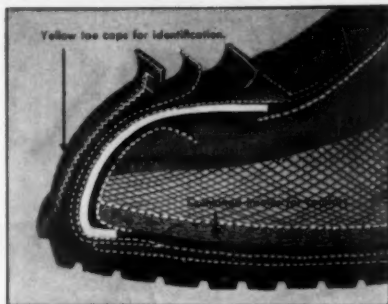


U N I T E D S T A T E S

—Engineered for special jobs



U. S. ROYAL WORK SHOES with steel toes, have cleated-type soles for safety, steel shanks to give your arches long hours of comfortable arch support, and Shockproof Insoles. Also with plain toes. Tough Tempered Rubber.



STEEL TOES WITHSTAND 2,000 POUNDS

Engineered like an arch, they've saved many a man's toes. Note scientific "U. S." construction.

LEGGIN BOOTS go over your shoes. Lightweight, rollable, they fold small to pack and carry. Knee or thigh lengths.



FLEXON RUBBERS offer high-cut protection in tough Tempered Rubber or all neoprene to resist oil, grease, acids. Molded anti-slip soles. Easy-adjusting stretchable tops.



U. S. ROYAL SNUGLACE BOOTS with steel toes, have flexible, ankle-fitting uppers with lace adjustment at top. Bar-Flex arch-supporting shank and non-skid sole. Shockproof Cushioned Insoles.

R U B B E R C O M P A N Y

ROCKEFELLER CENTER, NEW YORK

only
Lehigh
has it!

exclusive



"sock-saver"

(pat. pend.)

LEATHER TOE LINING



ends torn socks!

- insulates against heat or cold!
- can't rub or chafe toes!

NEW YORK SAFETY SHOW • Booth No. 16 • Hotel Statler • April 3-6



Stock No. 1613



Stock No. 1611

"Why buy two when one will do?"

tens of thousands of industrial employees have discovered that the new Lehigh Safety Shoes are just as smart as the best dress shoes. That means an important economy to the workman . . . a better foot safety record for the plant. This is the thinking that is putting more pairs of Lehigh Safety Shoes on men and women in industry than ever before in history. See us about putting it to work in your plant.



Stock No. 1616

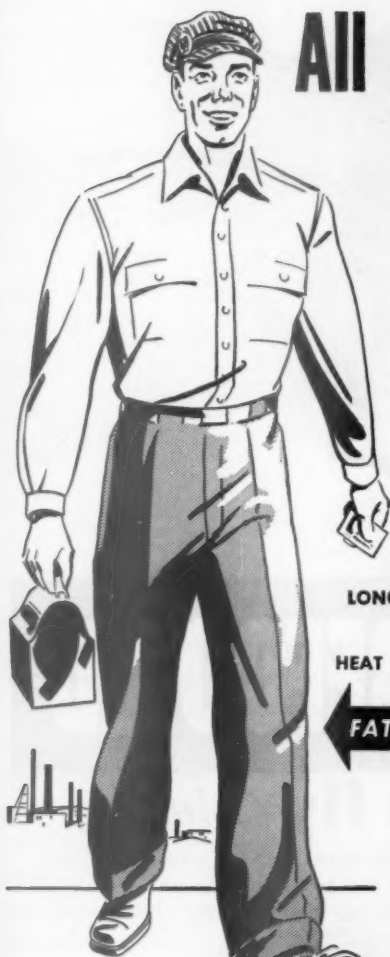


Stock No. 1615



All 6 accident prevention features in...

EXCLUSIVE AIR-CELL CONSTRUCTION



LIGHTWEIGHT/FLEXIBILITY!

SLIP RESISTANCE!

LONG WEARING!

WATERPROOF!

HEAT AND COLD INSULATION!

FATIGUE-LESS COMFORT!

If these 6 accident prevention features are important to you, then always specify famous **Vul-Cork** or...

Vul-Cork Oil Resisting Neoprene Soles — the only soles made with exclusive **AIR-CELL CONSTRUCTION**.



Vul-Cork oil-resisting Neoprene combines VUL-CORK'S famous comfort features with complete protection against excessive oils, acids, caustics, and hot surfaces underfoot. With Neoprene, lightweight VUL-CORK Soles remain flexible, do not crack in extreme cold, do not revert — or melt — on hot surfaces. The ideal all-purpose sole.

Free descriptive literature sent on request

Vul-Cork SOLES WITH EXCLUSIVE AIR-CELL CONSTRUCTION, patented and made exclusively by

THE Cambridge RUBBER COMPANY VUL-CORK SOLE DIVISION
TANESVILLE, MARYLAND

NEO-CORD

A fine cord and neoprene sole that is resistant to oil, grease, gasoline, acids, caustics and heat. Cord construction gives Neo-Cords a high non-slip efficiency for the life of the sole.



NEO-CORK

An outstanding cork and neoprene sole that gives long non-slip wear. NEO-CORKS resist gasoline, oil, grease, acids and caustics. They won't pick up metal chips, are waterproof and cushion the feet.



GRO-CORK

The finest cork and rubber sole. They are lightweight, waterproof and very slip-resistant. GRO-CORK soles won't pick up metal chips, they protect the feet from heat or cold, and are soft to walk on.



GRO-CORD

This remarkable sole, with its cord-on-end construction, affords non-slip footing and extra long wear. GRO-CORD soles should not be worn where grease, oil or gasoline saturates the footing.



SUREFOOTED

as a fly (almost)

Each of the four soles shown, will REDUCE ACCIDENTS caused by slipping, and give extra long wear. Nearly all safety and work shoe manufacturers supply footwear with these soles.



Mr. SAFETY ENGINEER

Will you assist in a research program to obtain data on the proper sole to wear on a particular job? If so, let us know of any condition that is wrecking shoe soles or where footing is hazardous. We will cooperate with you, at no cost to your company, in determining what type of sole will be the safest and wear the longest.

GRO-CORD RUBBER CO.

LIMA, OHIO

Canadian Plant

GRO-CORD RUBBER CO. of CANADA LTD.
Tillsonburg, Ontario

by popular demand!

4 GREAT NEW
MASTERCRAFTS
by Thom McAn



S-4270—New wingtip in smooth mahogany color. New "Winguard 400" safety toe box. Fully leather lined. Leather sole, rubber heel.



S-4276—Dress oxford in mahogany brown. Fully leather lined. New "Winguard 400" steel safety toe box. Extra heavy leather sole. Rubber heel.



S-4380—Comfortable blucher in cordovan color. Fully leather lined. New "Winguard 400" steel safety toe box. Extra heavy leather sole. Rubber heel.



S-4369—Dress oxford in cordovan color. Fully leather lined. New "Winguard 400" steel safety toe box. Heavy leather sole. Rubber heel.

SOLD 2 WAYS

1. Stocked for your men in Thom McAn stores.
2. Sold direct to plants.

Details of this service, plus information on the 4-way employee purchase plan, and the Thom McAn safety shoe features, should all be on your desk. Just write us and we'll see that they get there.

THOM MCAN SAFETY SHOE DIVISION
25 West 43rd Street, New York 18, N. Y.

Thom McAn

SAFETY SHOES

A DIVISION OF MELVILLE SHOE CORPORATION



There's a **HY-TEST SAFETY** **STYLE, COMFORT, QUALITY**



H713-2
Brown Kip Model-
lion Tip Blucher
Oxford, Weather-
wear Sole, Half
Rubber Heel.



H776
Brown Glove Plain
Toe Blucher with
Safe-size One Piece
Quarter, and Slant-
size Top, Neocork
Sole and Heel.



H781
Brown Glove Moc-
casin Type Bluch-
er Oxford, Resist-
Oil Sole and Heel.



H723-4
Brown Glove Lace-
to-Toe Blucher
with Slant-size Top,
Resist-Oil Outsole,
Leather Midsole,
Resist-Oil Heel.

Write for Catalog



THE WORLD'S LARGEST SELLING SAFETY SHOE
HY-TEST DIV. INTERNATIONAL SHOE COMPANY • SAINT LOUIS 3, MISSOURI

SHOE for Every Job

plus **PROTECTION**



H809
Brown Elk Finish
Ghillie Tie Oxford,
Vitalized Leather
Sole, 12/8 Leather
Rubber Top Piece
Heel.



H806
Brown and White
Saddle Oxford,
Vitalized Leather
Sole, 8/8 Leather
Rubber Top Piece
Heel.



H803
Brown Elk Strap
Pump, Vitalized
Leather Sole, 8/8
Leather Rubber
Top Piece Heel.



H802
Brown Elk Finish
Moccasin Type
Oxford, Vitalized
Leather Sole, 8/8
Leather Rubber
Top Piece Heel.



... Insure Workers' Feet in Sure Protection

HY-TEST SAFETY SHOES

THE WORLD'S LARGEST SELLING SAFETY SHOE

HY-TEST DIV. INTERNATIONAL SHOE COMPANY • SAINT LOUIS 3, MISSOURI

NEW YORK OFFICE: SUITE 1706, 325 W. 34TH ST. • EASTERN OFFICE: MANCHESTER, N. H.





A DOUBLE HEADER!

Here's your ticket for real "SPRING AND SUMMER" wear performance . . .
IN THE PLANT AND AFTER HOURS

EXTRA SAFETY
APPEARANCE
SERVICE
ECONOMY

1 SEAT
1 ROW
55 BOX
LOWER STAND • BOX SEAT

NEW

STEEL TOE, ASA APPROVED,
TWO-TONED BROWN AND TAN
PERFORATED



SAFETY SHOE

NEW PLASTIC LINING
UNDER TOE CAPS!

Impervious to foot acids and
perspiration. Cuts down
excessive sock wear!



No. 1457

Perforated and ideal for
warm weather wear and all
year 'round inside work. 1st Quality
Oak Leather Soles with Rubber Heels. Corru-
gated Steel Arch and Sponge Rubber Heel Pad
for added comfort.



No. 1455

Woven Vamp, Blucher construction for
those "hard-to-fit" feet. 1st Quality
Oak Leather Soles with Rubber
Heels. Steel Toe, ASA ap-
proved. Steel Arch and
Sponge Rubber Heel Pad.



IN THE PLANT • AFTER HOURS

**JOB
PROVED**

"JOB-PROVED" RICO SAFETY
SHOES are outstanding in
QUALITY • SERVICE • STYLE
Constructed of the finest upper
leathers, flexible for comfort,
yet rugged for work in the plant
and styled for use after hours.

Send for **FREE**
SAFETY SHOE CATALOG

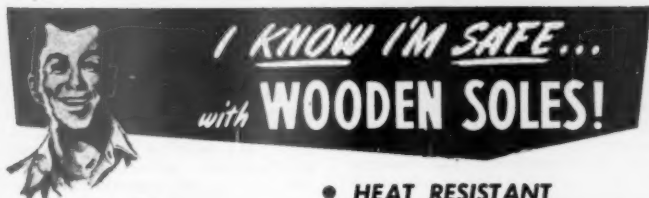


RECORD INDUSTRIAL COMPANY
3301 ARCH ST., PHILA. 4, PA.

- ☐ Please send for FREE copy of "SAFETY SHOES FOR EVERY JOB IN INDUSTRY"
- ☐ Have Representative Call

NAME _____ TITLE _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

RICO
RECORD INDUSTRIAL COMPANY
3301 ARCH STREET • PHILADELPHIA 4, PA.



- **HEAT RESISTANT**
- **THICK BUT LIGHTWEIGHT**
- **STRONG STEEL TOE**

No. 300—The Reece "Hot Foot" sandals protect your feet in furnace and foundry rooms. Straps on over your own shoes. Heat resistant wooden soles, strong galvanized iron counter, flexible hinge toe. Cannot slip.

Also No. 560—Tractor Tread Wooden Sole . . . provides great flexibility . . . straps on over any shoe.

Sizes—Small, Medium and Large



No. 504-S—Reece All-Purpose Shoe with soft, flexible leather uppers, steel toe, Reece "PERFECT ROCKER" Wooden Sole. Safe, reliable, dependable for factories, platers, oil refineries, foundries, steel mills. Also other styles.

Sizes—5-13. No half sizes.

...FOR THE FOUNDRY



No. 600—HIGH TOP PROTECTION—10-inch neat fitting boot laces up closely, providing protection against heat, water, steam and oil. Full bellows tongue, large eyelets, guaranteed counter, durable retan leather uppers. REECE "PERFECT ROCKER" WOODEN SOLE.

May be had with STEEL TOE.

REECE ORTHOPEDIC SHOE for BROKEN FOOT BONES CRUSHED TOES SWOLLEN FEET



No. x175-CG—Men's
No. x173-CG—Women's

SMOOTHLY finished WOOD SOLE with AIRFOAM insole acts as splint. Keeps injured foot immobile.

Keeps a man on his feet and on the job. Cool, firm but lightweight canvas, upper laces entire length . . . makes for perfect fitting even though heavily bandaged.

Sizes—Small, Medium, Large.

FOR THE FACTORY...



No. 511—OIL REFINERY SHOE. Heat and Oil-resisting leather uppers, "Perfect Rocker" Wood Sole. Popular price shoe. Sizes 3-13.



SHOWER SANDALS

Reece "Platform Rocker" wooden soles made of selected hardwood . . . satin smooth . . . lightweight . . . E. Z. Walking.

Plain or colorful straps attached with rustproof nails.

Also other styles.

With or without **Silencers**
Full run of sizes eliminates guessing . . . insures perfect fit.
Men's—4-13 Boys—1-5
Women's—3-9
no half sizes.

No. 180—Platform Rocker
No. 809—"Perfect Rocker"
Safety Heel strap extra.

Write for Catalog

BE SAFE —
WEAR A REECE WOODEN SOLE

**REECE WOODEN SOLE
SHOE CO.**

DEPT. NS-3

COLUMBUS, NEBRASKA

There is no
substitute
for Reece
Wooden
Soles

Respiratory Protection

(From page 75)

Harness to pull the hose lines requires inspection prior to use. The minimum requirement is that component parts of harness shall withstand a pull of at least 250 pounds.

Air-Line Respirators

Air-line respirators, connected to compressed air-lines, provide essentially the same protection given by hose masks. They are not intended for atmospheres immediately hazardous to life where the wearer could not escape if failure of the air supply

required him to remove the respirator.

This respirator differs from the hose mask mainly in two features: It has a hand-operated, quickly detachable coupling connected to the belt or body harness so that the operator can connect to a compressed air hose, also a flow-limiting device with capacity to permit air flows only between 2 and 20 cubic feet per minute.

A trap and filter installed in the compressed air line ahead of the masks to separate oil, water, scale, or other extraneous matter from the air stream is desirable.

An air-pressure regulator in the line is required if air is supplied at

a pressure in excess of 25 pounds per square inch and, in addition, a pressure release valve which will operate if the regulator fails.

The air-line respirator is the most desirable protection for operations requiring continuous use of a respirator. Other types of respirators may give adequate protection, but they offer a breathing resistance not present in the supplied-air type and are consequently more fatiguing.

To obtain clean air, the compressor intake must be kept away from all sources of contamination. The compressor should be well maintained. It must not run too hot, as dangerous amounts of carbon monoxide can be produced by decomposition of lubricating oil.

Abrasive Blasting

Abrasive blasting requires not only an adequate supply of filtered air, but also mechanical protection for the head and neck. This protection can be supplied either by an impregnated cloth hood or by a helmet of some rigid material. It should be covered both inside and outside with a plastic material, such as soft rubber, to increase both comfort of wearer and resistance to abrasive.

A window of transparent material, suitable for optical use, protected from the abrasive by a 30-to 40-mesh fine wire screen should be provided.

—To page 132

Are You Fully Protecting the Feet of Your Employees?



"SANKEY" IMPROVED FOOT GUARD equipped with Anti Skid TOE CLIP.

"SANKEY" FOOT GUARDS consist essentially of a metal shield to be worn over the shoe whenever the foot is in danger of being either crushed or cut. The metal shield is designed to furnish a maximum amount of protection to the entire front of the foot—not merely the toes alone, but also to the instep against hazards from falling, rolling or flying objects, or from accidental tool blows. Write for literature or a trial pair.

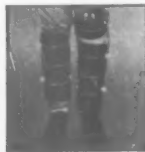
ELLWOOD SAFETY APPLIANCE COMPANY
219 SIXTH STREET ELLWOOD CITY, PENNA.



Combination
Foot-Shin Guard



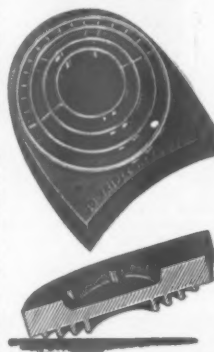
Foot Guard Equipped
With Anti-Skid
Full Sole



Fibre-Shin and
Shin-Knee Guard

NON-SKID SAFETY

S
H
O
C
K
A
B
S
O
R
B
I
N
G



L
O
N
G
E
R
W
E
A
R

The Triple Safety Heel was designed to minimize foot slipping accidents. It has a tread design of circular ribs with connecting cross bars that causes suction. In walking it gives road contact of one inch, where ordinary heels contact only on the edge. Laboratory tests show Triple Safety Heel has 97% road contact and traction.

Design permits rubber to flex, absorbing body shocks, minimizing fatigue. Triple Safety Heels will give longer wear and reduce slipping accidents on wet or slippery floors.

WRITE FOR CIRCULAR

TRIPLE SAFETY HEEL CO.
2149 Leland Avenue Chicago 25, Ill.

Two of many BIG REASONS why:

Iron Age is the Fastest Growing line of safety shoes!

If you could put your finger on any one reason for the growing acceptance of Iron Age safety shoes it would be *eye-appealing* style. This, plus in-built comfort and exceptional wearability, has induced more and more safety directors to stock from the complete Iron Age line. If you are looking for sales-impelling safety shoes . . . shoes that will reflect credit on your judgment and boost your coverage, then order from the Iron Age catalog. Write for your copy today.

...for work

FOR OIL AND HEAT RESISTANCE

A brown oil tan blucher. No. 636 is the fastest selling steel toe work shoe in the Iron Age line. It is made with an oil and heat resistant Neo-Cord sole. Has full leather middle sole, is reinforced at all points and carries a one-piece seamless back. *An outstanding value!*



No. 636

C 5-14 E 5-14
D 5-14 EEE 5-14

...or dress

THE HEIGHT IN STYLE COMFORT

No. 614 is a chestnut brown oxford. It is made on the highly popular moccasin oxford pattern. Both woven vamp and shoe lining are perforated for cool comfort. The stitching is bold and decorative. This steel toe shoe is built on the firm platform of a Neolite sole, famous for long wear, non-skid safety and foot ease.



No. 614

A 8-12 C 6-12
B 7-12 D 5-12
E 5-12

Iron Age

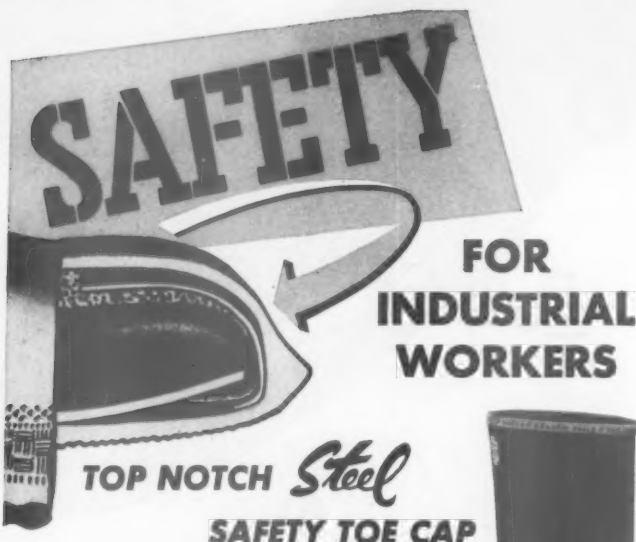
SAFETY SHOES



The Safety Shoe for Industrial America

Iron Age DIVISION

H. CHILDS & CO. INC.
Pittsburgh 23, Pa.



NEOPRENE HICUT

Maroon Neoprene uppers to withstand oil, grease, and acids, Non-skid Design and Molded Neoprene soles. A short Neoprene Boot where needed.

Also regular Work Rubbers, Red or Black, 2 Buckle, Storm or Hicut, for every purpose.



BLACK PAC

10" Height, side strap adjustment, gray Non-skid Design Outsole and Heel.

Also available, a Blucher Lace Style, with, or without Steeltoes.



BAR-FLEX BOOT

Patented outside arch and heel gives better traction and comfort.

Also, the OILACE BOOT with BAR-FLEX NON-SKID SOLE.

And, regular Industrial Boots, all heights, plain or steeltoes.



WORKIN

6" Work Shoe with Non-skid Design Outsole, plain or Steeltoe.

BEACON FALLS RUBBER FOOTWEAR

DEPT. 1, BEACON FALLS, CONNECTICUT

Respiratory Protection

(From page 130)

Both window and protective screen should be readily replaceable.

Self-Contained Apparatus

When it is necessary to work in atmospheres immediately hazardous to life at distances from the source of fresh air greater than the 150 feet provided by a hose mask, self-contained apparatus furnishing oxygen or air may be used.

Care of Equipment

A central station for care and maintenance of respiratory equipment is desirable where many respirators are in use. Such a unit can also handle the distribution and maintenance of other items of personal protective equipment.

Each employee should be provided with two respirators and either a locker or a hook at the central station. Respirators should be branded or tagged with a number to indicate the employee to whom it is assigned.

The respirator should be turned in to the central station at the end of each shift to be cleaned and sterilized, and repaired if necessary.

Where the maintenance crew works several shifts, one respirator per employee may be sufficient. Usually, however, it is necessary to have one complete unit in the process of cleaning while the other is being worn.

Filters should be replaced when clogged, and the used ones discarded. Canisters should be replaced at regular intervals as recommended by the Bureau of Mines. Even when not in use they lose their effectiveness with time.

Cleaning and disinfecting. All parts, except canisters and cartidges, should be cleaned after use. Face pieces, air lines and hoses may be washed with soap and water, rinsed in clear water, and dried.

All respiratory devices should be disinfected before being passed from employee to employee. Methods of disinfection include:

1. Immersion in solution of quaternary ammonium salt detergent. This material is not injurious to skin or to rubber.
2. Subjection to a moist atmosphere of antiseptic gas, such as formaldehyde, for 10 minutes.
3. Immersion for 10 minutes in a solution of formalin made by dissolving 1 part of 40 percent formaldehyde in 9 parts of water.

Parts should be rinsed thoroughly after sterilizing to remove traces of disinfectant, then dried.

Elastic head bands may be damaged by sterilizing but they should be washed with soap and water. Bands should be replaced when the respirator is transferred to another employee.

Handling Materials

MODERN materials handling makes it easier to transport materials from place to place. The improvements effected in recent years are saving time, money and men. The safety factor in the substitution of mechanical methods for hand labor is not the least of the benefits.

Materials handling has become a science planned to tie in with production methods. It involves a growing variety of handling devices designed to serve specific uses.

Some equipment, such as railroads, traveling cranes, conveyors and elevators, operate in fixed paths. They are needed where large quantities of materials move in a continuous flow.

Every plant needs portable types of equipment that may be moved anywhere in the plant or yard. In the larger plants these are useful auxiliaries to the fixed systems. In smaller plants they may serve all the plant's needs. This discussion will be concerned chiefly with portable equipment.

Basic equipment. Equipment in common use includes:

1. Hand trucks — Two wheeled, four-wheeled platform
2. Hand lift trucks
3. Powered hand trucks
4. Industrial powered trucks — Platform lift — high and low; fork lift; scoop
5. Hoists — Chain, air, electric, cable
6. Cranes — Portable goose neck, swinging boom
7. Conveyors.

Miscellaneous equipment includes skids, pallets, grabs, tote boxes, bridge ramps, dollies, wheelbarrows, etc.



Moving load of drums from low dock onto high-built trailer with powered hand truck and a portable ramp. (Barrett-Cravens Company)

Mechanical Muscles

Wire rope, chain, fiber rope, are important wherever there are loads to be lifted or hauled. Slings made of these materials, and their accessories such as rings and hooks, are also essential in load lifting.

These parts are subjected to heavy loads — sometimes overloads — they should be selected for the needs of the job and kept in serviceable condition by regular inspection and maintenance.

Unit Loading

Less handling and more pieces per each handling is the goal of modern methods. This is accomplished by unit loading — the assembly of loads on skids, pallets or trailers to be moved from one part of the plant to another without rehandling. It is only necessary for the truck to slide the platform or fork under the skid or pallet or the tractor to couple onto the trailer.

A **skid** is a platform elevated from the floor by legs, casters or special attachments.

A **pallet** is a modern version of the platform skid. The most common type is the double-faced wooden pallet with sufficient clearance between top and bottom to insert the forks of a fork truck for moving.

Industrial Trucks and Tractors

Wheeled vehicles of many kinds, both hand and power operated, keep goods moving in factories, warehouses, docks and railroad terminals. There are types suitable for every hauling or lifting job.

Wheelbarrows are useful for hauling and dumping bulk materials. They can be used where a two or four wheeled vehicle would be difficult to maneuver. Rubber tires and bodies of aluminum and magnesium alloys have made them lighter and easier to handle.

Hand trucks. The two-wheeler comes in a variety of sizes and types designed for handling bags, drums, barrels, cartons, beverages, etc.

Hand platform trucks are available in many designs and capacities. Generally they are built so they can be pushed by one of the end racks. They are best used for short and infre-

quent hauls. Capacities range from 150 to 2000 pounds.

Hand lift trucks. On trucks of this type the load is supported on platforms or skids. The load is raised and the truck pulled by hand power. They are useful where loads are not too heavy and distances are relatively short.

Powered hand trucks are similar to the hand lift trucks. Power for operation is supplied by storage battery. An electric motor mounted on the forward wheels supplies power to assist in hauling.

Power Trucks

Two general classifications of power units used for moving materials are gasoline engine and storage battery.

The **platform truck** finds its principal use on steamship piers, for hauling mail, express and baggage at railroad stations, and in industry for tote boxes and miscellaneous materials.

The **low lift truck** has a platform that elevates from 4 to 6 inches. It is used to pick up loaded skids, move and set them down in other locations without manual handling or use of other handling equipment.

The **high lift truck** may be used to tier loaded skids one above the other. Brakes give the operator control of the lifting device and the platform at all elevations.

The **fork truck** is an adaptation of the lift truck. It is used with palletized loads. Forks require less clearance than the elevating platform of the lift truck so pallets may be made shallower than skid platforms.

Double-faced pallets afford wider load distribution which is an advantage in tiering.

Special types of trucks apply the principles of the unit load to han-

IN THIS SECTION

Trucks and Tractors	133
References	134
Wire Rope	135
Chain	136
Lubrication	144



Right and wrong methods. Fork trucks are safe and efficient for carrying loads on skids and pallets (right). They should not be used for carrying drums, either between or on top of forks. In the background are jib cranes and power hoists. (Link-Belt Company)

ding materials not adapted to pallets or skids.

For bulk commodities, scoop trucks shovel loose materials and elevate and discharge them into hoppers or bins.

Ram trucks handle wire and strip metal in large coils. Roll-handling trucks for handling newsprint or other paper are equipped with a cable drum with two cables. Hooks on the cables hook over the ends of a rod which serves as an axle for the roll.

Crane trucks equipped with boom, cable and drum, with special lifting hooks, spreaders and slings are used for moving heavy unit loads and objects too large to be handled on truck platforms or forks.

Portable elevators (tiering machines or stackers). The portable elevator consists of an upright frame to which is mounted a platform that can be raised or lowered. It is moved from place to place manually. The hoisting mechanism can be either manually or power operated.

Portable elevators are used in warehouses for piling and storing materials. They should be equipped with a braking device to permit the safe lowering of the platform and a ratchet lock or dog should be provided to lock the platform in position during loading and unloading.

Safeguards include limit stops for top and bottom travel limits on the hoisting cable drum, as well as for the shipper rope, if one is provided. When in use, casters should be lifted off the floor.

Tractors and trailers are used where large quantities of materials must be moved over relatively long distances, as at freight terminals and piers. Loading and unloading is done

manually or by crane or other external means.

Conveyors

Where material moves in continuous flow, power-operated and gravity conveyors eliminate much handling and many opportunities for injury. Principal types are roller, chute, belt, chain, portable, screw, pneumatic, monorail and overhead trolley.

Gravity conveyors are of two general types—chute and roller.

For efficient and economical operation fixed systems require thorough study of the plant's manufacturing and material handling problems.

Power-driven conveyors should be equipped with emergency stopping devices located at convenient points.

Crossover bridges with adequate handrails should be placed where needed. Side boards along edges and at turns of overhead conveyors and screen guards underneath high runs protect workers from falling material.

Portable conveyors, power-driven or gravity, mounted on casters or wheels, can be moved where needed for short jobs. These are made in roller, belt and bucket types for handling packages and loose material. They are often used at warehouses, docks, shipping platforms, coal yards, and sand and gravel pits.

Portable floor cranes or hoists are mounted on wheels that can be moved from place to place, either by hand power or under their own power. These raise and lower loads in a vertical line. They will not rotate around a fixed point.

Portable cranes are useful in plants where overhead belting, shafting, etc., prevent the use of overhead cranes, and where service is not fre-

—To page 141

Handling Material Principles

Handle materials in large units. A two-wheel hand truck is better than a man's hands. A four or six-wheel hand truck is better than either. A lift-truck pallet combination is the most efficient system for many jobs.

Avoid rehandling. Every time you pick up materials and put them down again, it costs money. Arrange your system to handle goods as little as possible. Processing motion adds value to a product; handling motion adds only to cost.

Balance men and equipment. Assign no more men and no more equipment to a job than needed. Equipment sets the pace for men, not men for equipment.

Select equipment suited to the job. Study your operations. Find out exactly what equipment is needed and standardize on that. The nature of your facilities, floor load capacity, ceiling height, volume of material to be handled, intermittent or steady flow, commodity characteristics, and strength for package all have to be considered.

Move materials in a straight line. Flow of materials should always be toward destination. Lay out work areas so that back and cross hauling are held to a minimum. If you have a storage operation, study the item frequency rate. Items with greatest activity should be warehoused nearest to entrances and exits.

REFERENCES

Handling Materials

- National Safety Council:
Handling Material (Hand and Truck)—Safe Practices Pamphlet 54.
Hoisting Apparatus—SPP 33.
Industrial Power Trucks and Tractors—SPP 55.
Overhead Traveling Cranes SPP 4.
Wire Rope—SPP 26.
Know Your Wire Rope, by B. N. Carlson—National Safety News, Feb. 1949, p. 39.
Hoisting Chains—SPP 26.
Sling Chain Characteristics, by N. J. Gebert—National Safety News, Dec. 1949, p. 28.
Safer Lifts (Sling Chains), by S. N. Morrison—National Safety News, Nov. 1950, p. 34.
Fiber Rope—SPP 6.
Inside That Coil of Rope, by A. B. Hatch—National Safety News, Feb. 1948, p. 38.
Sisal Rope—Data Sheet D-Gen. 23.
Skids—Data Sheet D-Gen. 40.
Conveyors—SPP 35.
Burden Bearers (Conveyors)—National Safety News, July 1945, p. 32.
Bigger Loads, Fewer Injuries, by H. W. Darr—National Safety News Oct. 1950, p. 33.
Materials Handling in the Textile Industry, by S. E. Brookshire—National Safety News, Nov. 1949, p. 24.
American Standards Assn.:
Cranes, Derricks and Hoists, Safety Code for (B30.2-1943).
Electric Industrial Truck Assn.:
Material Handling Handbook.
National Bureau of Standards:
Wire Rope, Simplified Practice Recommendations—No. 198-43.
Federal Specifications:
Rope, Manila—TR601.
Rope, Wire—RR-R-571a.

Wire Rope

WIRE ROPE provides the high tensile strength and moderate flexibility needed for heavy lifting and haulage and for supporting rigging. It is serviceable under varying weather conditions but it should not be exposed to excessive heat or corrosive substances. Nor should it be dragged over abrasive surfaces.

In selecting wire rope, the following should be considered:

1. Size
2. Construction
3. Grade
4. Equipment on which rope is to operate
5. Handling, installation and maintenance of the rope.

Constructions

Wire rope is manufactured in a variety of constructions, each designed for certain service conditions.

In designating construction, the first numeral identifies the number of strands in the rope, the second, the number of wires in each strand. This is followed by a term describing the geometric arrangement of wires in each strand, e.g. 6 x 19 Filler Wire.

The 6 x 19 construction is the most generally useful. As the number of wires per strand increases, flexibility and reserve strength increase but ability to withstand abrasion decreases. A 6 x 7 construction has higher resistance to abrasion but less flexibility.

The core serves as a foundation for the strands. Three types of cores are used—fiber, independent wire rope, and wire strand. Fiber gives elasticity to the rope and is adequate for normal operating conditions.

Metal cores are used where maximum strength and minimum stretch are important, or where heavy loads or overwinding on a drum causes excessive pressure of strands against the core, or temperature is sufficient to dry out a fiber core.

Type of Lay. There are two general methods of laying up rope: (1)

Regular lay in which the wires in the strands are laid in the opposite direction to that of the strands in the rope, so that on the outside of the rope the wires lay approximately parallel to the rope axis; (2) Lang lay rope, in which the wires and strands are laid in the same direction.

Regular lay ropes are standard for most applications. They are easier to handle during installation and less susceptible to kinking.

Lang lay rope has good flexibility and high resistance to abrasion and fatigue.

Wire ropes are made either right or left lay. In most cases it makes little or no difference which type is used; right lay is standard.

Rope Grades

The material of which rope is made is a most important factor. Rope wires are usually made of the following materials and designated by their names. (Minimum tensile strengths are quoted from Federal Specifications RR-571 a.)

Improved plow steel. Has highest strength and toughness and most wear resistant properties. Most frequently selected for heavy duty service, as in deep shafts and on excavating machinery. Minimum tensile strengths, 218,000-244,000 p.s.i.

Plow Steel. Strength about 15 per cent less than improved plow steel. Serviceable for haulage, hoisting, logging and miscellaneous service. Minimum tensile strengths, 190,000-212,000 p.s.i.

Mild Plow Steel. Combines toughness with pliability, making it capable of undergoing repeated impact stresses. Used principally for cable tool drilling. Minimum tensile strengths, 165,000-184,000 p.s.i.

Cast Steel. Where strength is not the controlling factor, its pliability is important in long fatigue life. Resistant to acid mine water. (Not listed in Federal Specifications.)

Traction Steel. Used in hoisting ropes for traction type elevators. High resistance to bending fatigue and minimum abrasive action on sheaves and drums. Minimum tensile strength, about 160,000 p.s.i.

Iron. Low tensile strength (about 70,000 p.s.i.) but very ductile. Used principally in elevator service where it is being replaced by the more serviceable traction steel.

Corrosion-resisting metals. Where corrosion is a factor, such metals as stainless steel, bronze and monel metal are frequently used. All metal ropes are preferred to fiber core ropes.

Stainless steel is used in marine

operations, on aircraft, and where rope is exposed to alkali, acids of an oxidizing nature (such as nitric), neutral brines, food products, and temperatures damaging to carbon steel ropes.

Bronze has strength slightly in excess of iron rope. It is used frequently in marine service.

Monel metal is used where rope is exposed to marine atmospheres, acids of a reducing nature (such as sulfuric, muriatic and hydrofluoric), neutral brines, food products, pickling solutions, and aromatic chemicals.

Corrosion-resisting ropes are furnished in complete assemblies and slings with fittings attached. Temperature, humidity, nature and concentration of corroding chemicals should be considered in selecting equipment.

Wire Rope Slings

Wire rope slings are widely used for heavy lifting. Wire rope should not be used, however, where there are sharp bends over an unyielding surface. Tension of outside strands may cause serious injury to the rope.

Where a load has sharp corners, pads should be placed between the load and the sling.

The maximum load can be lifted when all legs of the sling are in a vertical position. The smaller the angle formed between the legs of the sling and the horizontal, the greater the tension on the legs of the sling and the less weight which can be lifted.

Proper selection and attachment of fittings have much to do with rope life and safety. Principal connections and attachments are:

- Babbitt or zinc socketed connections
- Wedge sockets
- Swedged attachments
- Thimble with clip connections
- Three-bolt clamp connection
- Spliced eye and thimble connection

Preformed Wire Rope

A preformed wire rope is one in which each individual strand, and at the same time each individual wire, is permanently formed into the helical shape it will assume in the finished rope. Some advantages of preformed rope are:

1. Higher resistance to bending fatigue.
2. Greater flexibility.

—To page 138

Wire Rope Strength

Grades	Breaking Strength (Lbs.) of $\frac{1}{2}$ " Rope
Iron	12,500
Traction Steel	23,000
Mild Plow Steel	24,600
Plow Steel	28,300
Improved Plow Steel	32,600



Storage rack for wire rope and chain slings.

Chain for Industrial Use

STRENGTH and flexibility, resistance to abrasion, heat, shock, wear and corrosion are qualities which make chain suitable for heavy hoisting and haulage jobs. It should be remembered, however, that not all types of chain measure up to the requirements of specific jobs.

Conditions under which chain will operate should be considered in selecting types. Impact loading factors should be considered and allowance made for bumpy cranes, rapid lifts and sudden stops. Heat, corrosive atmosphere, and unnatural strains also affect the selection.

Specifications for various types of chain have been compiled by the American Society for Testing Materials. The safe load may be determined from tables issued by the manufacturer.

Safe working load means the maximum load which should be applied to a chain in direct tension.

Breaking loads are merely of theoretical interest to the user. They are misleading and apt to promote unsafe practices.

Proof test means the actual test in pounds applied to the chain and attachments before leaving the factory. Proof test figures should not be considered as safe working loads. These tests are followed by visual link-by-link inspection by experienced inspectors.

Types of Chain

Conditions of use are important and the manufacturer should be consulted about applications for the various types.

Following are types commonly used in industrial operations:

Wrought iron chain (crane or dredge) has high resistance to shock fatigue and corrosion. This chain has close links and is used for slings, hoists, cranes, power shovels, and marine purposes where human life and property depend on its endurance.

Welded steel chain (low carbon) is made in three common types: Proof Coil, BBB, and Steel Loading.

Proof Coil is used principally for towing, binding, logging and similar operations. Links are comparatively long. Proof Coil chain is not suitable for lifting or for slings.

BBB Coil is a higher grade than proof coil, with safe working load approximately 25 per cent greater. Shorter links give greater flexibility. BBB coil chain is not suitable for lifting or for slings.

Steel loading chain has a tensile strength approximately 50 per cent higher than BBB. It is used in the logging industry for binding and loading logs and in oil fields for handling pipe and heavy equipment.

High test chain (high carbon) is heat-treated to give it high tensile strength and resistance to impact loads. Tensile strength is approximately double that of ordinary steel chain. Ductility is moderate. Where resistance to wear is most important, it permits use of smaller and lighter chain.

Alloy steel chain (general purpose) has exceptional strength for weight and size. It is resistant to some types of corrosion. It is frequently used where maximum tensile strength and resistance to abrasion is required, with reasonable resistance to impact.

Special purpose alloy chain is considerably higher in cost and is used on high temperature operations and where resistance to the action of corrosive substances is required.

Stainless steel is high in tensile strength, fair in elongation, but low in impact resistance. It is used chiefly for ornamental installations and nitric acid pickling.

Monel has fair tensile and impact strength and elongation. It is resistant to sulphuric and hydrochloric acid solutions but not to nitric.

Bronze has good elongation and fair resistance to impact, but low tensile strength. It is resistant to sulphuric and hydrochloric acid solutions but not to nitric.

Specialized types of chains have been developed for certain industries, such as those used in marine operations.

Finishes are sometimes added to chains to provide added protection from corrosion or for decorative effect.

Nickel alloy steel hoisting chain is approximately twice as strong as iron chain of the same size. It meets elongation requirements of the A.S.T.M. for iron crane and proof coil chain. It can be used over a wider range of temperature and is relatively immune to failure resulting from fatigue stresses and cold working of the metal.

Storage. When not in use, each chain should be hung on racks or



Testing chain for elongation. Regular inspection is essential for safe service.

placed in a neat pile on a dry floor or platform where it will not create a tripping hazard. Exposure to corrosive fumes or liquids should be avoided.

Safe Loads. Some plants stamp on a metal tag attached to each chain the safe vertical load which may be lifted with that chain. A better way is to stamp the safe load, or a reference number, on the ring or hook. Stamp marks should not be placed on links where they might form points of weakness.

The useful life of all material handling equipment, particularly rope and chain, is shortened by overloading, jerking, and neglect of the maintenance details recommended by the manufacturer.

Chain Slings

Chain slings are furnished complete with all attachments made to proper dimensions and of material specified for various uses with ample factor of safety.

Rings and hooks are as important as the chain itself and should receive the same attention in inspection and maintenance. A hook bent by overloading should not be repaired and put back into service. The stress of bending weakens metal so that its future strength is unreliable.

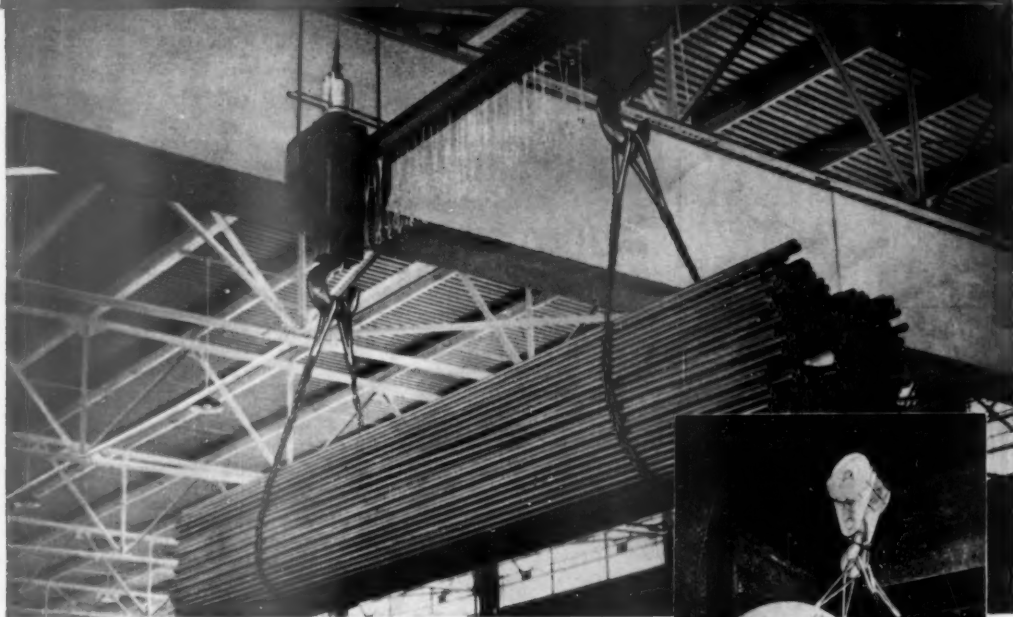
Crossover Bridges

Where loading docks are separated by railroad tracks, crossover bridges are needed. Some are of the draw-bridge type; others are mounted on four pillars that can be raised or lowered quickly by push-button control.

WHEN USING CHAIN

1. Eliminate twist before applying load
2. Do not jerk chain
3. Lubricate chain where there is friction
4. Avoid overloads.
5. Use correct fittings
6. Test chain regularly for wear, elongation and fracture
7. Replace chain when worn excessively or when showing fracture. A broken chain may cost more than a new one

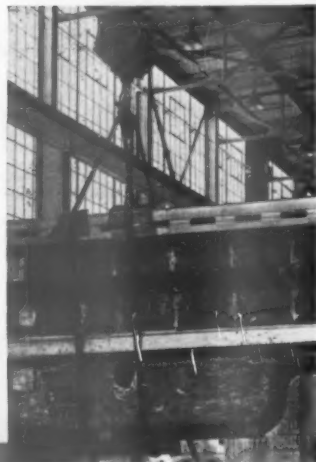
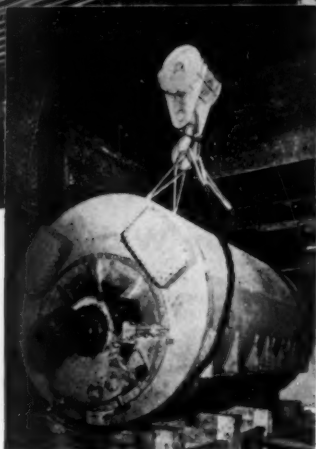
MACWHYTE SLINGS AT WORK



Macwhyte DREW Type 1 Flat-Braided Slings handle loose bundle of steel pipe

Macwhyte MONARCH Cable-Laid Grommets handling large casting

125-ton generator unit handled with Macwhyte ATLAS Type 1 Round-Braided Slings

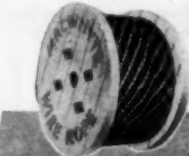


In hundreds of plants across America, Macwhyte Wire Rope Slings are standard lifting equipment. These slings are made to order to handle any type or size of load. A special braided construction, developed by Macwhyte, assures maximum flexibility and safety. For sling recommendations call a Macwhyte distributor or write to Macwhyte Company. Catalog on request.

MACWHYTE COMPANY

2902 Fourteenth Avenue, Kenosha, Wisconsin.
Manufacturers of Internally Lubricated PRE-
formed Wire Rope, Braided Wire Rope Slings,
Aircraft Cables and Assemblies, Monel Metal
and Stainless Steel Wire Rope. Mill depots:
New York • Pittsburgh • Chicago • Minneapolis •
Fort Worth • Portland • Seattle • San Francisco •
Los Angeles. Distributors throughout U.S.A.
carry stocks for immediate delivery.

Member National Safety Council



MACWHYTE COMPANY
KENOSHA, WIS.

For cranes and hoists use PRE-formed
Monarch Whyte Strand Crane Rope
made by Macwhyte.

IF YOU'RE NOT USING "FIST-GRIP" CLIPS

YOU'RE ASKING FOR TROUBLE! Here's Proof!

WRONG and RISKY!

Tightening of nuts on ordinary U-bolt clips pulls wire rope into bowed shape, crushes rope, endangers safety.



In use, rope between U-bolt clips is crimped under tension, leading to further damage and early breakage.



Laughlin "Fist-Grip" Safety Clips grip the rope in four bearing-surfaces, holding it straight without damage or distortion.



Keeping the rope straight under working tension, "Fist-Grip" Clips deliver 95% to 100% of the rope's rated breaking strength.



RIGHT and SAFE!

You Get All These Benefits Only With "FIST-GRIP" Clips

Won't crimp or crush—pre-formed or regular lay wire rope; leaves them full strength for safety and longer life.

Simple, easy to put on—saves time, manpower; can be put on with any type wrench.

100% foolproof—can't be put on backward.

Sure grip—two clips do the work of three.

Extra strength and safety—only type of clip where entire clip, including bolts, is drop-forged.

Distributed through mine, mill and oil field supply houses.

Get This Valuable FREE Data-Book

Use the coupon below for Laughlin Catalog-Data Book, telling how to select the right wire rope or chain fitting for every job.



**SEND IN
TODAY**
...no cost or
obligation

THE THOMAS LAUGHLIN CO.
33 Fore St., Portland 6, Maine
Please send Catalog-Data Book #150 to:

Name.....Position.....
Company.....
Street.....
City.....Zone.....State.....

LAUGHLIN

THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS



Wire Rope

(From page 135)

3. Less susceptible to kinking and therefore easier to install.
4. More equal distribution of load on each strand and wire.
5. More resistant to whipping and vibration.
6. Hugs small drums better and winds more uniformly and smoothly.
7. Operates over sheaves with less rotation around its axis, resulting in less wear on rope and sheaves.
8. May be socketed with less danger of unbalancing the lay of the rope below the base of the socket.
9. Does not unravel when seizings are removed from ends of rope.
10. When outer wires break through fatigue, they do not protrude or "porcupine." This reduces risk of injury in handling.

Since broken wires are more difficult to detect in preformed rope, greater care is needed in inspection. However, broken ends separate slightly, permitting detection.

Strength and other qualities are the same for preformed and non-preformed rope of the same size, grade and construction.

Causes of Failure

When wire rope fails to give the expected service, the reason is seldom a defect in the rope. Following are some of the more common causes:

1. Use of rope of incorrect size, construction or grade.
2. Allowing rope to drag over obstacles.
3. Lack of proper lubrication.
4. Sheaves and drums of inadequate size, causing short radius bends.
5. Overwinding or crosswinding on drums.
6. Sheaves and drums defective or out of alignment.
7. Ropes jumping sheave flanges.
8. Effects of heat, moisture, or acid fumes.
9. Improper fittings.
10. Permitting ropes to untwist.
11. Kinking.
12. Severe overloads, reverse bends, and other excessive stresses.
13. Internal wear caused by grit penetrating between strands and wires.

How to Order

When ordering wire rope, the following information should be furnished:

1. Length.
2. Diameter.
3. Construction — Number of strands; Number of wires per strand;

—To page 140

There is only ONE

HERC-ALLOY SLING CHAINS

The original and exclusive formula that made HERC-ALLOY America's first and safest alloy steel chain continues as industry's favorite. Emphasis may vary among users as to the relative importance of such service and safety features as ductility, high strength, weight, hardness, link design, long life and so on, but on one point most agree...they have yet to find an alloy steel chain superior to HERC-ALLOY. Preference founded on performance results cannot be denied.

Safety directors, management and production executives who have not yet had actual experience with HERC-ALLOY steel chain for slings or other materials handling jobs, should let a CM representative show evidence of what's happening in other plants.

When writing ask for this popular booklet. Every safety director should have a copy.



FREE... HERE'S
THE ADDRESS

COLUMBUS McKINNON CHAIN CORPORATION

TONAWANDA, N. Y., U. S. A. * CABLE ADDRESS: KINCHAIN
MANUFACTURERS OF ALL KINDS OF INDUSTRIAL, AUTOMOTIVE, AGRICULTURAL AND MARINE CHAIN

Affiliated with CHISHOLM-MOORE HOIST CORPORATION
TONAWANDA, N. Y., U. S. A. * CABLE ADDRESS: CHISMOORE

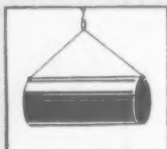
Manufacturers of all types of overhead materials handling equipment including hand and electric hoists, overhead trolleys and cranes.



a New Idea!

Now any load can be lifted the easiest way it can be picked up. And perfect balance is maintained every time.

Sling hooks are attached to load, saddle moved to correct position along chain's links which fit in pockets of the ACCO SLING CHAIN ADJUSTER. Then load is ready for lifting. Twisting or spiking of chain is unnecessary. Made in sizes for $\frac{1}{2}$ ", $\frac{3}{8}$ ", $\frac{1}{4}$ ", and $\frac{3}{16}$ " chain.



Adds greater safety on level lifts



Prevents slippage on angle lifts



Provides control of unbalanced lifts

SEE your AMERICAN CHAIN distributor
or write us for full information

ACCO

York, Pa., Atlanta, Chicago, Denver, Detroit,
Los Angeles, New York, Philadelphia, Pittsburgh,
Portland, San Francisco, Bridgeport, Conn.

AMERICAN CHAIN DIVISION
AMERICAN CHAIN & CABLE



In Business for Your Safety

"Intentionally Better"
SLING CHAINS

Wire Rope

(From page 138)

Arrangement of wires in strand, such as Seale, Filler Wire, etc.

4. Type of Fabrication — If pre-formed rope is desired, it should be specified. Otherwise, non-preformed rope will be furnished.

5. Finish — Galvanized finish should be specified if required. Otherwise bright rope is usually furnished.

6. Grade — Improved plow steel, Plow Steel, Iron, etc.

7. Lay — Regular Lay Right Lay will be furnished unless otherwise specified. If Lang Lay or Left Lay is wanted it must be specified.

8. Core—Specify fiber core, independent wire rope core, or wire strand core.

9. Lubrication—Type of lubricant should not be specified unless there are unusual service requirements. Each construction and grade of rope is treated with a lubricant adapted to that particular rope for a wide range of service conditions.

10. Use for which rope is intended.

Wire Rope Lubrication

All wire rope should be treated at regular intervals with a lubricant to keep pliable and to prevent rust. Pound for pound, wire rope probably has more bearing surface (inside the rope) than any other equipment, so the importance of lubricating is obvious.

The best lubricants are those furnished by manufacturers and dealers especially for lubricating wire rope. Oil, engine SAE 10 below 32° F., and oil, engine SAE 30 above 32° F., meet wire rope requirements.

Lubricants which meet specifications are free from acids and corrosive elements and have good penetrating and adhesive qualities. They do not cake, gum or ball-up if contaminated with dirt or metal particles.

Lubricant may be applied with a brush if no other method is available. It should be brushed on slowly, carefully and frequently because it is difficult to get complete coverage and penetration.

A more effective method is a simple three-sheave trough. It should be firmly fixed near the reel or drum and the rope run through the lubricant not faster than 30 feet a minute.

Idle wire ropes are most susceptible to damage by rust. It is therefore important to see that they are well lubricated when not in service.

Regular lubrication and inspection will insure full service from wire rope.

Cranes

(From page 134)

quent enough to justify more expensive equipment. The lifting mechanism usually consists either of a winch with wire rope and block, or a chain hoist, operated by hand or by electric power.

Hoists operated by electric power should be effectively grounded to prevent shock in case of short circuit.

Jib cranes can lift, lower and rotate a load within the scope of the circle covered by a rotating arm or jib upon which runs a trolley. The jib is usually supported from a wall or column. A hoist—hand-operated air or electric—is suspended from the trolley. A substantial stop at the end of the jib arm prevents the trolley running off.

Hoists

A hoist is a mechanical device, suspended from overhead, used for raising or lowering loads through a vertical plane. Common types of hoisting apparatus include:

1. Block and tackle
2. Hand chain hoist
3. Electric hoist
4. Air-operated hoist

Block and tackle. Blocks threaded with fiber or wire rope are used for suspending scaffolds, raising objects, and other industrial purposes. When used to lift heavy materials or to hold loads suspended, as on heavy duty scaffolds, wire rope should be used.

Hand chain hoists may be used where overhead cranes cannot be installed on account of lack of head

SAFETY INSPECTION

THESE are some of the things to look for when making a safety inspection:

1. Do men operate machinery, or use tools, appliances, or other equipment without authority?
2. Are they working or operating at unsafe speeds?
3. Have guards been removed, or have guards or other safety devices been rendered ineffective?
4. Do men use defective tools or equipment; or use tools or equipment in unsafe ways; or use hands or body instead of tools?
5. Do they overload, or crowd, or arrange, or handle objects or materials unsafely?
6. Do men stand or work under suspended loads, open hatches, or shafts, or scaffolds; or ride loads; or get on or off equipment or vehicles in motion; or walk on railroad tracks, or cross car tracks or vehicular thoroughfares except at crossings?
7. Do they repair or adjust equipment in motion, under pressure, electrically charged, or containing dangerous substances?
8. Does anyone distract the attention of, or startle, other workers?
9. Is there any failure to use safety devices or protective clothing?
10. Are there any other unsafe acts of persons?



SAFETY INSTRUCTION CARD No. 325

National Safety Council, Inc., Chicago PRINTED IN U.S.A.



Magic Word For Raising the Performance of Wire Rope Slings!



Cutting any of the 9 part braided wire fabric will not cause stranding.



Proof tested to twice safe working load based on safety factor of 5.



It's really amazing how Tuffy simplifies your load lifting problems—and how many more tons of material every Tuffy sling will raise and move. An entirely different, patented interlaced wire fabric construction gives Tuffy Slings extraordinary stamina and flexibility—makes hitching easier, sling life longer. Proof tested to twice safe working load.

Factory fitted and factory packaged, 10 different types of Tuffy slings for every hitch and every purpose come to you ready to use—eliminating costly rigging and splicing.

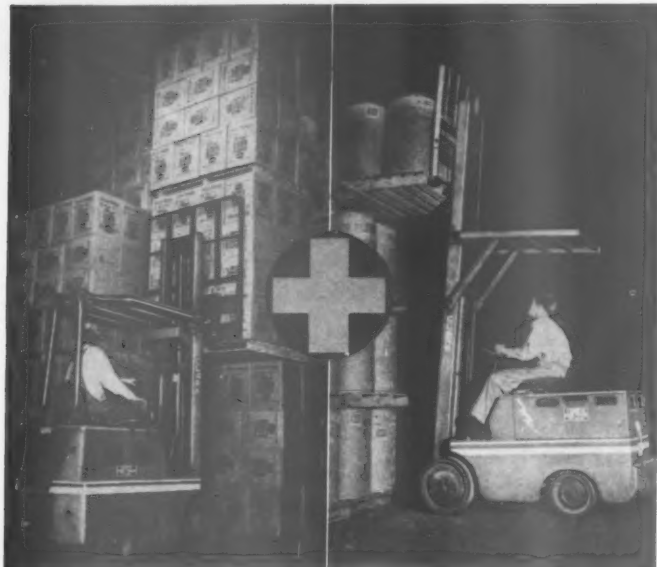
Easy to order—just say or write TUFFY Slings—the type, length and diameter you need. For the highest sling performance and the ultimate low in sling cost, call your distributor (see listing in phone book, yellow section) or write us for full information on Tuffy Slings—or any of the Tuffy family of special purpose wire ropes; Tuffy dragline, Tuffy scraper rope, Tuffy rotary drilling line, Tuffy logging chokers or Tuffy mining machine rope.

UNION WIRE ROPE CORPORATION

Kansas City, Missouri

Specialists in Wire Rope, Braided Wire Fabrics and High Carbon Wire

union
Wire Rope



SAFETY and More Power for Manpower Too!

Every handling operation you eliminate means one less opportunity for accidents—Clark machines eliminate many handlings. Notice how Clark-Power for Manpower increases safety...

- **LESS DAMAGE**—Powerful, steady, highly-maneuverable. Clark fork trucks reduce accidents and resulting losses.
- **NO LIFTING STRAINS**—Elimination of manual lifting automatically prevents many worker injuries. Clark fork trucks do all the lifting and carrying.
- **LESS HUMAN FATIGUE**—Accident rates increase with worker fatigue. Clark fork trucks decrease worker fatigue. Clark fork trucks *never* tire.
- **HIGH STACKING SAFELY**—Exceedingly hazardous when done manually, high stacking is easy and safe when fork trucks are used.

Eliminating accidents and saving money by doing it!—any way you look at that, it's a bargain. Your Clark dealer can help you achieve it. Talk to him. Also send for the Clark Condensed Catalog and Material Handling News—profitable reading.



CLARK ELECTRIC AND GAS POWERED
FORK TRUCKS
AND POWERED HAND TRUCKS • INDUSTRIAL TOWING TRACTORS

INDUSTRIAL TRUCK DIVISION • CLARK EQUIPMENT COMPANY • BATTLE CREEK 147, MICH.

Please send: ☐ Condensed Catalog ☐ Material Handling News

Name _____

Firm Name _____

Street _____

City _____ Zone _____ State _____

room. They also handle heavy pieces at machines where there is frequent need for a hoist. One hoist may handle the work at one or more machines.

Steel is recommended for load-sustaining parts. It will withstand sudden shock better than cast iron and is much lighter in weight for equal strength. Chain should be of best quality steel and should be welded.

Each hoist should be equipped with a braking device which automatically locks the load when hoisting is stopped.

Chains and sheaves should be lubricated at intervals, depending on atmospheric conditions.

Electric hoists range in capacity from $\frac{1}{4}$ ton to 20 tons. They are faster than hand hoists and less fatiguing for large loads. The light duty hoist uses link chain for lifting. The heavy duty type uses wire rope.

Limit stops prevent the hoist from traveling too far in case the operating handle is not released in time.

Air hoists operate on compressed air. They are used where sparks from electric equipment might be a hazard, or where smoothness of operation is important. The air hoist is limited in travel because of dependence on the air lines.

Grabs, grips and tongs of several types have been developed for use with overhead handling equipment, such as cranes, monorails, hoists, etc. Some can handle a variety of objects while others are highly specialized.

Diary of a Safety Engineer

(From page 5)

ty on purchases than most safety men.

And when I said that, I could see him pose a question in his mind, start to ask it, and then pull back. I think I can almost phrase the question he didn't ask. It was something like, "Well, if we're so darned progressive here, why isn't the safety department consulted on—" and here I have to guess at what he would have said, whether it would have been, "solvents" or "portable electric tools," or something else.

And if he had asked, I would have pooh-poohed the idea, knowing that we aren't going to be consulted on those things this year or next, and that I'll settle now if they'll agree to check me on a couple of matters with even more obvious safety tie-ins.

And yet, even as I pooh-poohed Jim's ideas, I'd have known darned well that before he gets out of this business, 35 years from now, he'll be consulted on things like those.

For if the old, dusty file on "Policy—Purchasing" means anything, it means that we've already come a long way—but that we've still got a long way to go.

DUALOC

**gives you
ALL you
pay for
... and MORE!**



STRAND-LAID

Made from right regular lay
preformed wire rope of
improved plow steel with IWRC.
For general sling use.

CABLE-LAID

Made by laying up seven
individual preformed
improved plow steel
wire ropes all with IWRC.
Gives extreme flexibility.

SAFETY STRENGTH EFFICIENCY

ACCO Registered Wire Rope Slings are built for safety. Safe for men to handle because wire ends are permanently secured under a steel collar. Safe to use because the endings will not pull out. They will outlast the rope.

STRENGTH, the full catalog strength of the rope is assured, because in making the DUALOC ending the rope is not damaged or distorted. Safety factor is 5 to 1. Proof-testing at twice rated capacity is further assurance of satisfactory service.

EFFICIENCY of DUALOC is high. By developing rope's full strength, frequently smaller diameter rope costing less can be used. The neat DUALOC ending snubs closely, is easy to rig, and is always "open" for inspection. It saves time and energy. You'll save money with ACCO Registered WIRE ROPE SLINGS.

**See your distributor today or write for full information
on DUALOC and other ACCO Registered WIRE ROPE SLINGS**

*Trade Mark Registered

MEMBER THE NATIONAL SAFETY COUNCIL


Wilkes-Barre, Pa., Chicago, Denver, Houston, Los Angeles, New York,
Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.

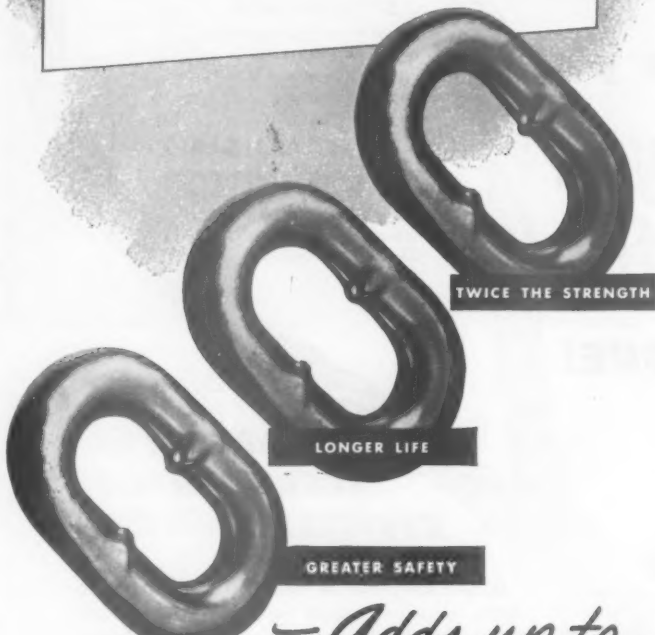
ACCO

AMERICAN CHAIN & CABLE
WIRE ROPE SLING DEPARTMENT

In Business for Your Safety







TWICE THE STRENGTH

LONGER LIFE

GREATER SAFETY

— Adds up to...

Lower Chain Costs!

Reverse rising chain costs with TM Alloy Steel Chain. It's super safe. It stays on the job five to fifteen times longer—has twice the tensile strength of wrought iron chain. TM Alloy Steel Chain is completely heat-treated for link to link uniformity. Extreme toughness and great resistance to shock, grain growth and work-hardness eliminate periodic annealing costs. Call your mill supply distributor today for more details or write Dept. 7 for Bulletin 12A.



This Registration Ring bears the chain's serial number. It's your assurance of thorough testing and inspection before shipment.

5. G. TAYLOR CHAIN COMPANY
HAMMOND, INDIANA

TAYLOR MADE

A GREAT NAME IN

Chain SINCE 1873

Lubrication

PROTECTING high-speed machinery against friction is one of the serious problems of modern industry. Much attention has been given to the problem by machine designers and builders, manufacturers of lubricating equipment and lubricants, and lubrication engineers.

Modern machines operate at high speeds upon countless bearings, and these need proper lubrication at regular intervals.

As machinery became more complicated and operating speeds increased, old methods of lubrication became inadequate. New types of lubricants also had to be developed.

The first important improvement on the oil can was the pressure gun and nipple introduced about 1918 for servicing motor vehicles. Some five years later portable systems began to be used in industry.

While a great improvement over old methods, these systems still had drawbacks. Many machines had to be shut down before lubrication.

The next step was to group fittings at central stations and run individual tubes to the bearings. The machine could be serviced from the floor without risk to the oiler but the amount of grease delivered to each bearing depended largely on guesswork.

Automatic pressure feeding grease cups were the next development. These were designed to provide a constant supply of lubricant to all bearings while the machine was in operation. Centralized lubrication systems have been undergoing continuous refinements to meet industry's growing needs.

Complicated machines with hundreds of remote bearings can be served efficiently and economically by centralized systems. Clean oil or grease is supplied under pressure from the central pumping unit to every bearing.

The lubricant is renewed as often as the machine and the operation require, which may be once or twice per shift or several times an hour.

On some systems an indicator signals the delivery of the correct amount of oil to each bearing. Waste is avoided.

With a central pressure system there is no need to stop the machine for lubrication and the hazardous job of crawling over the machines is eliminated.

Pressure lubrication systems require the use of special greases. No single lubricant has been found best for all types of machines.

For Older Installations

On older machines an automatic system may not be practical. However, other measures will help to improve lubrication and reduce the hazard to the oiler. One or more of these methods may be used for reaching remote bearings:

MERRILL HANDLING DEVICES

4 SIZES

LIFTING CLAMP

TWIN LIFTER

HAND GRIP

DRUM TILTER

DRAG CLAMP

4 SIZES

DRUM OPENER

MERRILL BROTHERS
56-28 ARNOLD AVE., MASPETH, N. Y.

1. A service platform or runway giving access to several bearings. Moving parts of machinery should not project over platforms; if this is unavoidable, these parts should be enclosed.

2. A small car suspended from an overhead I-beam. The car enables the oiler to travel parallel to the line shaft, and reach bearings with his oil can or grease gun.

3. Long-spout gravity flow or forcefeed oil cans, which enable the oiler to stand in the clear. Some of these have spouts long enough to reach overhead line shaft bearings from the floor.

4. Oil reservoirs at individual bearings with control devices operated by hand poles.

5. Extension pipes on bearings where grease or oil cups are in the danger zone. These may not be practical in cold places where low temperatures make it difficult to force oil or grease through the pipes.

With long-spouted oil cans, it is sometimes difficult to locate a small oil hole. In such cases oil cups with lids that snap open and shut are advisable. These cups keep dust out of the bearings.

Storing Timber to Prevent Decay

(Forest Products Laboratory)

MANY serious losses from decay in wooden structures are due to the fact that the timbers used were infected with wood-destroying fungi while in storage. These losses can be greatly reduced by keeping lumber storage yards in a sanitary condition. Following are some hints as to how to do this:

Store on well-drained ground. Efforts should be made to store the product on well-drained ground, removed from the possible dangers of floods, high tides, and standing water.

Remove debris and keep down weeds. All rotting debris scattered about yards should be collected and burned, no matter whether it be decayed foundation and tramway timbers or stored lumber which has become infected. In the case of yards already filled in to considerable depths with sawdust and other woody debris the situation can be improved by a heavy surfacing with soil, slag, or similar material. Weeds should be cut away from the piles to allow ventilation.

Use proper foundations. More attention should be given to the foundation of lumber piles in order to insure freedom from decay and better ventilation beneath the stacks. Solid foundations should never be used. In humid regions the stock should never be piled less than 18 to 24 inches from the ground. Wood blocking used in direct contact with wet ground should be protected by the

Do it the RIGHT Way!

SAFE-LINE WIRE ROPE CLAMP

Does Not Slip

FASTER—SAFER—ELIMINATES SPLICING

Millions in daily use prove Safe-Line the right way to hold wire rope securely. It's the better way, too!

Better because Safe-Lines are faster than splicing and serving, or using U-bolts.

Better because Safe-Lines outpull the strongest rope, hold a tight thimble, minimize rope or sling breakage.

Better because Safe-Lines are easy to use and re-adjust, without special tools or skilled labor.

Better, too, because Safe-Lines enclose sharp wire ends, preventing personal injury and mental hazards.

Try this better way that saves you time and money.

Approved BY UNDERWRITERS' LABORATORIES AND CIVIL AERONAUTICS ADMINISTRATION



FORGED AND MASTER COINED TO FIT ROPE SIZES $\frac{1}{16}$ " TO $\frac{3}{4}$ "

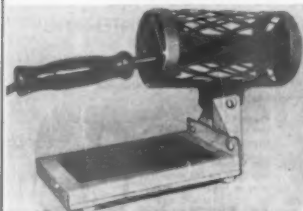
Safe-Line double spiral splines fit each wire and strand, providing a powerful grip, without cutting action to the rope. Replacement guarantee on clamp against breakage and fracture.

WRITE FOR DESCRIPTIVE PRICE-LIST FOLDER

NATIONAL SAFE-LINE CLAMP CO.
11223 NINE MILE ROAD
VAN DYKE, MICHIGAN

—To page 148

WILDER ADJUSTABLE SOLDERING IRON HOLDER






FOR **Safety**
AND **Speed**
IN SOLDERING

AVAILABLE WITH WIPING PAD AS SHOWN ABOVE OR WITH BRACKET FOR BENCH AND SHELF MOUNTING
FOR COMPLETE INFORMATION WRITE

WILDER MFG. CO., INC.
411 LEXINGTON AVENUE
BROOKLYN 14, N. Y.

Check these Points

BEFORE you buy CHAIN

-  **1 FUNCTION OF CHAIN**
-  **2 WORKING LIMIT LOAD**
-  **3 PERMISSIBLE SIZE AND WEIGHT**

Then "Engineer"
McKAY CHAIN
to your specific needs

The use for which the chain is intended and working conditions under which it will operate often determine the type of chain to be used for the job. That's why it's important to check the above points before buying chain. Call on McKay to help "engineer" McKay Chains to your exact requirements. Then you'll be sure you're getting the best chain to do the job efficiently and economically.

Send for the
McKAY
SLING-CHAIN KIT

It gives standard sling-chain specifications and shows how to specify sling and other chains used in plants and shops.



THERE'S A
McKAY CHAIN
FOR EVERY JOB

THE McKAY COMPANY
445 McKAY BUILDING
PITTSBURGH 22, PA.

Fiber Rope

FIBER ROPE is widely used for block and tackle work, for suspending scaffolds and staging, in marine operations, and for life lines and land-yards. It can be tied and spliced easily and its flexibility adapts it to many uses.

The best fibers have good tensile strength and resistance to weather and abrasion. When the larger sizes of fiber rope would be indicated for heavy loads, wire rope furnishes the required strength with less bulk.

Fiber rope should never be exposed to high temperatures or to acid or acid fumes. Sharp bends should be avoided. Where a sling passes over sharp edges pads should be used to protect the rope.

Rope should not be kept in stock for long periods. Vegetable fiber deteriorates with age, even under favorable conditions. When rope is used only at long intervals, age should be considered in its use and retirement.

Natural Fibers

Manila fiber is standard for tensile strength and durability. A good grade of manila rope, when new and clean, is hard but pliant, yellowish in color with a silvery pearl luster. When drawn through the hands, it has a smooth, almost silky feel.

Sisal is the next best fiber. Strength varies from 65 to 80 per cent of manila. Sisal rope has a yellowish color, with sometimes a slight greenish tinge. It lacks the gloss and smoothness of good manila. Sisal fibers are stiff with a tendency to splinter.

Mexican sisalana (henequin) lacks the strength of high quality sisal but has been used to some extent during the shortage of better grades of rope. Strength is about 60 per cent of manila.

American hemp fiber is much softer than manila. It has a dark gray color. It is not highly resistant to abrasion but when tarred it will give fair service on some jobs. Strength is about 80 per cent of manila.

Jute and cotton are not recommended for handling material or other uses where strength and durability are needed. Strength is about 50 per cent of manila.

Synthetic Fibers

Nylon. This fiber has a high rating for tensile strength, toughness, flexibility and durability. It is easy to handle.

Nylon rope has a higher tensile strength, wet or dry, than natural fibers and does not show marked deterioration when frozen. Melting at 480 degrees F., it can be readily destroyed by fire but it does not ignite

and burn with flame. It is unaffected by rot or mildew. Attacked by acids but resistant to alkalis.

Nylon rope is higher in initial cost than vegetable fibers, which limits its use.

Unolyn, a new synthetic fiber of the nylon type, has shown desirable qualities for life lines. It has unusual ability to absorb impact force and has considerable elasticity.

Glass. High strength when dry but low resistance to flexing and abrasion. Poor performance when wet reported.

Saran. Resistant to rot and many chemicals. Practically unaffected by aging, direct sunlight and moisture. Only moderate resistance to abrasion and temperature.

Care of Rope

Kinking is highly destructive to rope. It may cause hidden damage that will result in failure when the rope is again put under strain. Kinking is more likely to occur when rope is wet because of shrinkage due to swelling of the fibers and consequent shortening of the lay.

New ropes should be uncoiled by laying the coil on the floor with inside end down; then reach down through the center of the coil and pull this end up, unwinding the coil counter-clockwise. If the rope uncoils in the wrong direction, the coil should be turned over and the end pulled out on the other side.

Sometimes ropes become kinked after use. One method of removing these kinks is to open up the coil and

FIBER ROPE MAINTENANCE

The life of fiber ropes and safety in its use depend greatly upon the good treatment the rope receives. Some good maintenance suggestions include:

1. Prevent the rope from kinking. [See Safety Instruction Card No. 183.]
2. Use blocks of sufficient size to allow the rope free play in sheave grooves.
3. Rope is injured by being dragged over the ground, over uneven surfaces, or bent over sharp corners. In making rope fast, select a round smooth surface, or use pads to protect it.
4. Keep rope from freezing. Throw out a rope slowly; high temperatures destroy the rope rapidly.
5. Alternate wetting and drying cause injury to rope fibers. If the rope is to be exposed to weather continually, it should be treated with a preservative from time to time.
6. Prevent the rope from coming in contact with acid.
7. Coil damp rope loosely and hang it up to dry. Clean dirty rope thoroughly and dry it before storing. [See Safety Instruction Card No. 160.]
8. Store rope in a clean dry place where it will not be exposed to high temperature.



SAFETY INSTRUCTION CARD No. 106

recoil left-handedly. When the coil is completed, the free end is brought through the coil and the rope is then coiled right-handedly.

Uncoiling the rope and stretching it out in a single length is another method of unkinking where space permits.

Rope should be stored in a dry place where it will not be exposed to high temperature and where air may circulate through the coils.

Rope deteriorates very quickly if it becomes saturated with water and is not properly dried. Alternate wetting and drying will also cause rapid deterioration.

The Safety Library

Recent books, pamphlets and
periodical articles for safety men.

BOOKS AND PAMPHLETS

Building Code

Basic Code, 1950 ed. Published by the Building Officials Conference of America, Inc., 51 East 42nd St., New York 17, N.Y. 1950. 370 p. Price \$5.00.

Electricity

National Electrical Code. Published by the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass. 1951. 547 p. Price \$3.00. (National Fire Codes, Vol. V)

Regulations

Specific Requirements and General Safety Standards of the Industrial Commission of Ohio for Workshops and Factories. Published by Industrial Commission of Ohio, Department of Industrial Relations. Columbus, Ohio. 1950. 77 p.

Women

Handbook of Facts on Women Workers. Published by U. S. Women's Bureau, 1950. 106 p. For Sale by the Superintendent of Documents, Washington 25, D. C. Price 30c. (Bulletin No. 237)

MAGAZINE ARTICLES

Health

The Education and Function of the Industrial Health Team. By Ronald E. Lane. (In British Journal of Industrial Medicine, Oct. 1950. p. 161)

Health

Health Hazards in the Disposal of Organic Solvents. By Kenneth M. Morse. (In What's New in Industrial Hygiene, Jan.-Mar. 1950. p. 3)

National Defense

Safety Means Survival. By W. H. Adams. (In American Gas Association Monthly, Jan. 1951. p. 11)

Welding

Ophthalmic Effects of Welding Radiations. By Walter E. Fleischer. (In the Sight-Saving Review, Winter, 1950. p. 2, 11)

Thompson's PNEUMATIC ACID PUMPS



★ EASY to operate for air pressure causes a steady, smooth flow of acid. No spurts or splashing.

★ SAFE for it is impossible to create dangerous air pressure. Flow of acid stops instantly by pressing release valve.

★ ECONOMICAL — longer life assured as no acid contacts pump parts — reasonable replacement parts — proper tube materials available for different acids.

★ CONVENIENT — operates at floor level — no lifting of carboys. Pump pipe serves as gauge — easily transferred to new container.

SAFETY CARBOY TILTER with AIR VENT POURING SPOUT

★ Locking device holds carboy at any angle so pouring can be done by one man.

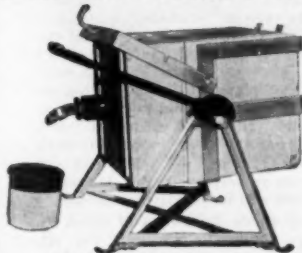
★ Safety Air Vent Pouring Spout provides a 5 gal. even flow without spurts.

**THOMPSON
MFG. CO., INC.**

ERIE

PENNA.

We also manufacture pumps for air-line pressure and an All Purpose Hand Truck.



If not handled by your supply jobber write direct.

FOR GREATER SAFETY!

Wedglok

PATENTED

CONNECTING LINKS

SAFETY • STRENGTH • SIMPLICITY • ENDURANCE



Combination sling of wire rope and chain connected by Wedglok safety links

A vastly improved connecting link that combines safety with unique simplicity in assembly. Its strength exceeds the published strength of comparable alloy chain . . . assembles rapidly without the use of special equipment.

WEDGLOK is widely used in steel mills, foundries, structural fabricating plants and other material handling operations in which on-the-spot replacement of links is important.

Regular and pear shape. Sizes $\frac{3}{8}$ " to 3".

Available at your local distributors.

MAIL THE COUPON FOR PRICE LIST AND INFORMATION

A PRODUCT OF

**INTERSTATE
DROP FORGE CO.**

4073 N. 27th ST., MILWAUKEE 9, WIS.

Please send WEDGLOK data.

Name

Firm

Address

City State

Storing Timber

(From page 145)

application of creosote or other anti-septic oils or else replaced by concrete, brick, or other durable materials. Treated skid timbers would also be highly advantageous.

Slope lumber piles. Foundations could be built so that the piles will slope approximately 1 inch to every foot of length.

Assist ventilation by avoiding close piling in the open. In most regions lumber should not be close piled in the open, but should be "stuck" with crossers at least 1 inch thick. Lateral spacing is also very desirable. Roofing of cover boards on the piles should not be neglected, and should extend over for several inches in front and back.

Take care of "Stickers." Instead of throwing the "stickers" about on the ground to become infected with decay, they should be handled carefully and when not in use piled on sound foundations and kept as dry as possible. If pine saturated with resin, or the heartwood of such durable species as white oak or red gum is employed, the danger of infection will be greatly decreased.

Keep sheds dry and well aired. In storage sheds the necessity for piling higher from the ground is very apparent in many cases. The same

remedies apply here as for pile foundations in the open. The sheds should be tightly roofed and the siding should not be run down below the bottom of the foundation sills. Free air circulation should be allowed from all sides beneath the enclosures. Only thoroughly dry stock should be stored in close piles under cover.

Check fungous outbreaks. Should fungous outbreaks occur in storage sheds not constructed to meet sanitary needs the infected foundation timbers should all be torn out and replaced with wood soaked in an anti-septic solution or by concrete or brick. In all cases the new foundations should be so constructed as to keep the lumber well off the ground, and the soil and timber adjacent to the infected area should be sprayed or painted with an antiseptic solution of a water-soluble salt, such as sodium fluoride, mercuric chloride, zinc chloride, or copper sulphate.

Linemen's Equipment

Special tools and protective equipment have been developed for linemen and generating station employees. Operating conditions vary but certain items are standard.

Tools used near energized equipment should be designed for the job and insulated to minimize the danger

of short circuits in the equipment and shock to the operator. Insulation on tools alone, however, is not adequate protection near high voltages.

Items in common use include:

Linemen's rubber gloves
Leather protector gloves
Rubber line hose and blankets
Linemen's belts and safety straps
(leather and web) See page 117.

Climbers

Rubber coats
Tool pouches
Tool buckets
Fuse pullers
Switch sticks
Insulated stools
Switchboard mats

Regular and thorough inspections should be provided for all protective equipment. Any article found defective should be immediately repaired or replaced.

Brooms, brushes and other cleaning equipment used around energized equipment should be free from metal. Insulating handles of tools should be kept clean and dry and only non-conducting preservatives used on them.

Acid Handling

Acids, alkalies and other corrosives require a variety of specialized handling apparatus. Devices include buckets, dippers, funnels, pitchers, pumps and carboy inclinators.

Bags for carrying bottles of corrosive liquids lessen the risk of accidental breakage. The bag is of impermeable, acid resistant material and padded.

Materials used for equipment include rubber (natural and synthetic), stainless steel, and certain types of plastic. These materials are of many types which differ quite widely in their resistance to corrosives.



UNBREAKABLE ACID HANDLING UTENSILS

BUCKETS—1, 3 and 5 gallon. Small top on five gallon to minimize splash.

DIPPERS—1 pint, 1 and 2 quart with convenient safety pouring handle.

MEASURES—1 pint and 1, 2, 4 and 6 quart with pouring lips and convenient curved tipping handles.

FUNNEL—10" diameter; handle and eye.

CLOSED TYPE CONTAINER—1, 3, and 5 gallon. For safe transporting of solutions without danger of splashing or spilling.

LONG SPOUT CONTAINER—5 gallon. 14 inch curved pouring spout, hood, tipping handle. Protects employee where reaction is expected.

The safest utensils made for handling acids, alkalis, and other corrosive solutions. Perforated steel core, all-welded construction. Seamless rubber coating—inside and out. No metal exposed. Rubber welded through perforations prevents separation from metal.

Write for Catalog

AUTOMOTIVE RUBBER CO. INC.
8601 EPWORTH BOULEVARD
DETROIT 4, MICHIGAN

PROTECTION AGAINST CHEMICALS

Acids and Alkalis

When exposed to acids and alkalis, protect yourself by wearing the proper clothing.

1. If there is danger of spills from above, wear acid hood, rubber coverall, gloves and boots. See picture.
2. Where minor splashing is the only hazard, wear goggles, rubber boots, rubber apron and gloves.
3. Tuck the glove gauntlets inside your sleeves.
4. Keep your trouser legs outside your boots.



Remember: The best of clothing is only partial protection. Complete safety depends upon how you handle the chemicals with which you work.



SAFETY INSTRUCTION CARD No. 42
National Safety Council
PRINTED IN U.S.A.

Machine Operation and Guarding

Guarding the Machine

MACHINERY is involved in approximately one-fifth of all compensated occupational injuries in manufacturing industries. More significant is the fact that 25 per cent of all permanent disabilities result from machinery accidents.

Among the machines which figure most frequently in accidents are power presses and woodworking machines, such as circular saws, jointers and planers.

The majority of machine accidents occur at the point of operation, although not always during the normal operation of the machine.

Much attention has been given to machine guarding since the beginning of organized accident prevention work and many effective safeguards have been developed. However, there are many types of machines used in industry and a great variety of operations performed on these machines. This, and the fact that human beings frequently do unexpected and irrational things, often makes positive protection extremely difficult.

Many machines are quite safe for normal operation. It is quite unnecessary for an operator to place his hands in the danger zone but sometimes they do. Guarding, therefore, must be planned to protect the individual against his own lapses as well as against the normal hazards of the job.

More and more modern machines are equipped with guards built in by the manufacturer. This is in keeping with the trend toward streamlining. Such guards are usually more efficient as well as better looking.

REFERENCES

Machine Operation

Construction of Machinery Guards—Safe Practices Pamphlet 58, National Safety Council.

Individual Die Guards and Adjustable Press Barriers—Data Sheet D-Me. 37, NSC. Punch Presses Can Be Guarded, by R. L. Thuma—National Safety News, Jan. 1950, p. 24.

Mechanical Power Transmission Apparatus, Safety Code for (B15-1927)—American Standards Assn.

Compressed Air Machinery and Equipment, Safety Code for (B19-1938)—American Standards Assn.

Foiling Friction (Lubrication), by Walter E. Montgomery, National Safety News, May 1950, p. 32.

Press Brakes—Data Sheet D-Me. 28, NSC.

Color is a safeguard. Highlighting the point of operation with light tints which stand out against the darker background of the machine enables the operator to watch the work with less effort on the eyes. Strong colors which give warning when a guard is missing are also helpful.

Where built-in guards are not practicable, as in the case of older machines, or machines requiring special guards, standard types of commercially available guards are recommended. Standard guards for such machines as power presses, circular saws, paper cutters, and others, are designed to fit nearly all sizes and styles of machines.

A guard which interferes seriously with output has little chance of success. It is not likely to be popular with either the operator or the management. Planning a guard, therefore, should be done in cooperation with the supervisor and the operator.

Guard design must often be approved by state factory inspectors, insurance engineers and others. Since state codes are not uniform and at best represent only minimum requirements, the codes and recommendations of the American Standards Association should be followed.

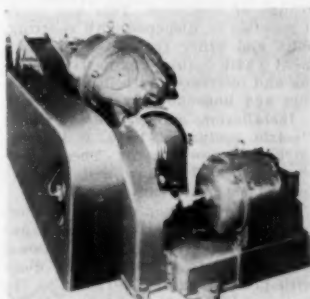
Point-of-Operation

Guarding the point of operation effectively is usually more complicated than enclosing power-transmission apparatus.

Point-of-operation guards are installed at those parts of machines where cutting, shaping or forming is performed, and at other points where there may be a hazard to operators inserting or manipulating stock.

Guards should protect operators both from moving machine parts and from moving materials. This may be done by safeguards of the following types:

1. Mechanical feeding and ejecting devices.
2. Two-hand control devices.
3. Redesign of machine parts so that it is impossible for the operator to get into the danger zone.
4. Devices that interrupt movement of tools or machines, while any part of the body is in the danger zone.



Streamlined guards on steel mill conveyor drive. (Link-Belt Company)

5. Devices that pull or push the operator's hands away from the danger zone.

6. Barricades, covers, hood guards and other enclosures.

7. Interlocking devices.

Power presses. Automatic feeding and ejecting devices, enclosure guards, sweep guards, hand or arm "pull-back" guards, and stroke limitation, are among the means used to control the hazard of operation.

Few types of guards provide 100 per cent protection. For instance, an automatic or dial feed may make it unnecessary, but not impossible, for an operator to place his hands in the danger zone. But frequently an operator cannot resist the impulse to straighten a misplaced part just before it passes under the ram.

Therefore, automatic feed should be supplemented by a substantial enclosure which isolates the point of operation. This provides much safer operation, especially on slow-moving presses.

Machine parts are sometimes adjusted to minimize the hazard of operation, as in limiting the stroke on a press so that the fingers cannot enter between the dies.

Die design. On punch and forming presses it is frequently necessary to install guards of a different type for each set of dies used. For this reason,

—To page 158

IN THIS SECTION

Guarding the Machine.....	140
Electric Equipment	150
Hand and Power Tools.....	151

Electric Equipment

ELECTRICITY has contributed much to modern industry in efficiency, cleanliness, and, in many cases, safety.

The flexibility of electric power permits installation of motors on individual machines, or for driving groups of machines. This has made it possible to dispense with shafting, belts and other transmission equipment which required extensive guarding and interfered with light, ventilation and housekeeping.

Installation, maintenance and use of electric equipment have, it is true, introduced new hazards. These, however, are well known and effective control measures can be applied.

Safety guides for the use of electric equipment are given in numerous publications, including the **National Electrical Safety Code**, which deals with prevention of injuries, and the **National Electrical Code**, which deals with fire protection measures.

Electric equipment which has passed exacting tests and bears the approval of recognized testing laboratories is available.

Installation. All electrical work should comply with applicable codes.

Transformers, control boards, starting rheostats, and other apparatus should be placed where there is the least danger of accidental contact with energized conductors. All exposed current-carrying parts should be further protected by enclosures, railings or special guards.

Motors should be mounted so as not to interfere with normal plant traffic. Non-enclosed type motors should be located in areas relatively

free from dust, moisture, or corrosive vapors.

Isolating equipment. When practicable, transformers, control boards and other accessories should be placed in special rooms to which only authorized persons have access.

If a separate room is not feasible, enclosures should be built around equipment having exposed conductors. Enclosures made of metal should be effectively grounded.

Barriers may be used to prevent accidental contact with electrical equipment. Frames may be made of wood, rolled metal shapes, angle iron or pipe. Filler may be of woodstrips, sheet metal, perforated metal, expanded metal, wire mesh, or shatter-proof transparent material.

Some protection can be obtained by elevating wires and current-carrying parts at least eight feet above any working level to which employees (other than qualified electricians) have access. Where long metal parts, such as rods, bars and pipes are handled, partial enclosures or barriers should be provided to prevent contact with overhead electrical installations.

Warning signs should be displayed near exposed current-carrying parts, especially high-voltage installations.

Many standard machine-guarding practices apply to electric equipment, but there are certain hazards peculiar to electricity. Particular attention should be given to the **National Electrical Safety Code** and the **National Electrical Code**.

Protective grounding is necessary for exposed non-current-carrying metal parts if the equipment is supplied by means of metal-clad wiring, when installed in a wet location, and when it operates with any terminal at more than 150 volts to ground. Parts to be grounded include motor frames, cranes, cases of transformers and oil switches, wiring conduit, and metal lamp sockets.

Frames of all portable motors which operate at more than 50 volts to ground should be grounded.

Motors should be of the type and size required for the load and for conditions under which they must operate. Overloading over long periods, use of non-approved motors in areas containing flammable vapors or dusts, and defective wiring should be avoided.

Protect motor winding from metal particles, dirt, dust, lint or other materials which may damage the windings or become ignited. In areas containing flammable materials, such as dusts and gases, motors designed for hazardous locations should be installed. The **National Electrical Code** should be followed.

Grounded metal enclosures are rec-

ommended for starting rheostats, switches, fuse panels, and other operating accessories. In some devices, both switch and fuses are enclosed in a cabinet so arranged that the switch can be operated without opening the cabinet. The switch is interlocked through a cam so that the fuses are inaccessible until the switch is opened.

Another type of enclosed switch permits the door of the cabinet to be opened with a key, even though the switch is closed. With either type of cabinet, it is possible to padlock the door open or closed, and the switch can be padlocked in the open position.

Maintenance and repair work. When repair work is being done on motors, their controlling devices, or the machinery they drive, the circuit should be de-energized by opening the necessary switches and locking them in the open position.

If a switch cannot be locked open, it should be blocked and a tag attached showing that the switch is to be closed only by the man whose name appears on the tag. Warning signs should be displayed.

Wiring depends upon the type of building construction, the size and distribution of electrical load, exposure to dampness or corrosive vapors, location of equipment, and other factors. For most plant conditions, rigid metal conduit, effectively grounded, is satisfactory.

Other methods which may be used under certain circumstances include armored cable, non-metallic sheathed cable, flexible metal conduit, raceways, open wiring on insulators, and concealed knob and tube wiring. National and local wiring codes should always be observed.

Over-Current Devices

Over-current devices, such as fuses or circuit breakers, should be in-

—To page 159

REFERENCES

Electricity

Electric Equipment in Industrial Plants—Safe Practices Pamphlet 29, National Safety Council.

Scientific Facts Concerning Electrical Hazards, by Charles F. Dalziel—Safety Reprint Gen. 4, NSC.

Your Electric Equipment, by D. L. Beeman—National Safety News, Nov. 1948, p. 24.

National Electrical Code (C1-1946)—American Standards Assn. (National Board of Fire Underwriters Pamphlet No. 70.)

National Electrical Safety Code (1948)—National Bureau of Standards.

Installation and Maintenance of Electric Utilization and Maintenance Equipment (C2-1941)—American Standards Assn. (National Bureau of Standards Handbook H33.)

Installation and Maintenance of Electric Supply and Communication Lines—Handbook H43, National Bureau of Standards, Grounding Portable Electric Equipment—Data Sheet D-Gen. 42, NSC.

Methods of Locking Out Electric Switches—Data Sheet D-Gen. 41.

Electricity and the Human Body, by W. B. Kouwenhoven—National Safety News, Feb. 1951, p. 30.



Dead-front switchgear with draw-out type air circuit breakers which serves incoming power and lighting at research center of Cincinnati Chemical Works, Inc.

Hand and Power Tools

HAND TOOLS of various types are used in even the smallest shops. Since their use involves accidental contact with cutting edges or severe blows, they are responsible for numerous injuries on the job. Estimates of the percentage of disabling injuries caused by hand tools range from 5 to 15. While many of the injuries involve only first-aid treatment, these slow down work and offer chances for infection.

Hazards are increased by selection of the wrong tools for the job, neglect of maintenance, and the idea that anybody can use them.

Portable power tools have the hazards of hand tools increased by high speed operation and more severe blows. With electric tools there is also the hazard of shock.

Types of Tools

Tools commonly used in industry are of the following general types:

1. **Metal Cutting**—Cold chisels, marking tools, bull chisels, hack saws, tin snips, cutters.

2. **Wood cutting**—Chisels, gouges, saws, axes, adzes, hatchets, knives, brad awls.

3. **Lifting**—Levers, crowbars, jacks, hooks, shovels.

4. **Torsion**—Wrenches of various types, pipe tongs, screwdrivers, pliers.

5. **Striking**—Hammers, sledges, mauls, picks, punches.

Some tools belong in more than one classification. An ax, for example, is both a cutting and a striking tool.

Accident causes. One or more of four primary causes are responsible for injuries with hand tools. Following are examples:

1. A wrong or improvised tool—a file or screwdriver for prying; a wrench for hammering.

2. A defective tool—a burred chisel head; a dull saw or knife; a split maul handle; a tool of poor quality.

3. Tools incorrectly used—striking two hard-surface tools together; failing to take practice swing with sledge to adjust for clearance; pulling on pliers in line with face.

4. Tools not put away—wood chisel loosely laid in tool box; hammer left on edge of machine; knife left on table.

REFERENCES

Tools—Hand and Power

Hand Tools—Safe Practices Pamphlet 41, National Safety Council.

Knives, Hand—Data Sheet D-Gen. 30, NSC.

Powder-Actuated Hand Tools—Data Sheet D-Gen. 34, NSC.

Maintaining Electric Hand Tools, by John A. Hill, National Safety News, Feb. 1950, p. 30.

When You Use Portable Electric Tools, by B. B. Ramey, National Safety News, Apr. 1948, p. 20.

Selection. Standard tools for routine and special work should be kept in stock or readily available. High grade tools are the best buy and the difference in initial cost is offset by longer life, reduced upkeep and lessened risk of accident.

Suitable arrangements should be made and responsibility placed for the purchase, handling and care of tools. The purchasing department should be kept informed of tool performance as a guide to future purchases.

Alloy steels have advantages where the need for strength and toughness combined with light weight justifies the higher cost. Alloys are used for

Section 4—Machine Operation and Guarding

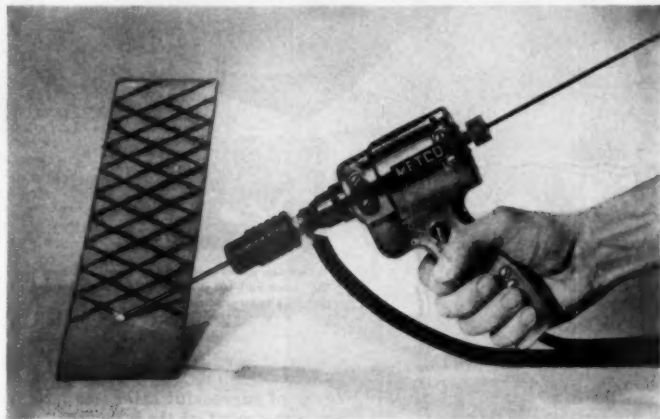
hammers, wrenches, screwdrivers, wood working tools, pliers, rivet sets, saws, knives and punches.

Some alloys offer resistance to mushrooming and chipping but no tool should be subjected to unnecessarily rough use.

Non-ferrous hammers or mallets should be used for striking tempered or case-hardened tools. These hammers are usually made of copper, lead, bronze, brass, rawhide, or wood.

Handles. With hammers, sledges axes, picks, etc., the greatest strain is where wood and metal join. An adequate supply of good handles

—To page 162



NEW TOOL WELDS SAFETY-TREADS FASTER, BETTER AT LOWER COST

No Arc to "Hold" with New Vibrator Welding Tool—
Deposits Non-Slip Beads on Metal Surfaces at 5 FPM—
Total Cost 10c Per Sq. Ft.

Now you can do a really effective job of preventing slipping and falling accidents on smooth metal surfaces. Just apply rough metal beads, quickly and easily, with the RUF-TRED vibrating electrode holder. Used with standard AC or DC welding machines, the RUF-TRED Tool deposits hard, "foamy," long-wearing beads which retain their "gripping" characteristics even when wet or oily. As easy as drawing a chalk line. Fast—applies 5 feet per minute. No welding skill required—the RUF-TRED Tool vibrates the electrode for automatic intermittent arcing. Total cost for safety-treading one square foot only 10¢, including labor, material and power.

Slip-proof your metal stair treads, walkways, platforms, running boards, foot pedals, door sills, manhole and trench covers.

Write for FREE Bulletin 56-S

METALLIZING ENGINEERING CO., INC.

38-14 30TH STREET

MADE IN U.S.A.

LONG ISLAND CITY 1, N. Y.

In Great Britain: METALLIZING EQUIPMENT COMPANY LTD. Chobham near Woking, England

SAFETY without *Sacrifice of Speed!*



1. Operator places work on die with one hand, removing finished part with other. Note clear working space, permitting faster production.

2. Operator places both hands on safety device handles; this trips press and assures that hands are out of danger zone when ram descends.



3. Operator removes finished part; places next part in position for next stroke. An easy natural routine permitting top speed.



Years of successful safety experience prove the merit of these devices, prove that safety can be achieved without sacrifice of speed in power press operation. The booklet illustrated at the left describes these three devices:

BENJAMIN PUNCH PRESS SAFETY DEVICE

*Keeps Hands out of Harm's Way . . .
Eliminates Foot Treadle . . . Speeds
Output . . . Inexpensive!*

This device eliminates the possibility of accidentally tripping the press while hands are in the way by making it necessary for the operator to use both hands to trip the press! In successful use for over 30 years on practically every make, size and type of press. Introduces no new mental or physical hazards, makes safety a part of the working cycle, eliminating lost motion. Imparts sense of security which enables operator to speed output. Conserves die-setters time because it does not have to be removed or adjusted. All punch press manufacturers will install them on presses ordered or you can order direct and make installation yourself. Underwriters' Laboratories approved.

BENJAMIN AUTOMATIC AIR EJECTORS

Increase Output by utilizing Compressed air to Automatically Eject Stampings, Blow Out Chips, etc.

These ejectors are specifically designed for releasing an accurately timed blast of air of correct volume and intensity for ejecting stampings, blowing out chips, scale, etc. The set consists of the valve, trip and hose. Can be installed on any size or type of press and any machine on which there is a suitable reciprocating or rotating motion for actuating the valve. Operates from your regular compressed air line or by means of the

BENJAMIN UNIT COMPRESSOR

This air compressor is attached to the side of the press or machine and utilizing the action of the press compresses the air required for operation of the Benjamin Ejector. It provides an economical solution to the problem of obtaining a compressed air supply where there is no existing compressed air system. Use of this device is desirable also, where expensive dies are used and in other operations requiring moisture-free air supply. Being self-contained, this device eliminates the possibility of moisture in the air which often develops in long air lines.



Send for this Free Manual. Shows hundreds of manufacturers, large and small, are utilizing Benjamin Safety Devices to help increase safety and improve production. In this manual are contained complete details, installation instructions, diagrams, and how to order information.

Write today FOR THE FREE MANUAL: address the
Benjamin Electric Mfg. Co., Dept. U., Des Plaines, Illinois

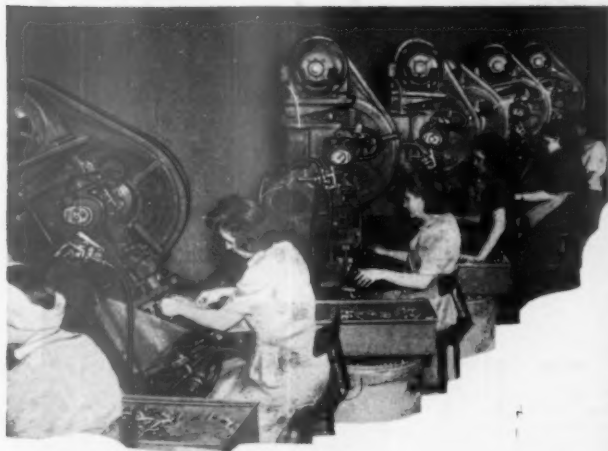
RE-2153 R

BENJAMIN

TRADE MARK

PUNCH PRESS SAFETY DEVICES - AIR COMPRESSORS AND EJECTORS

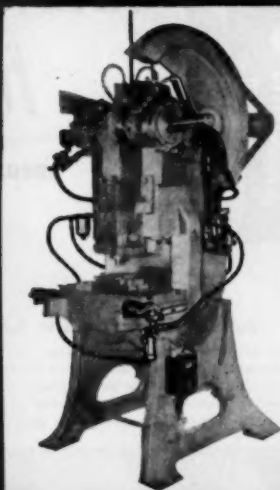
Years of *SAFETY* for Minutes of Thought



SCHRADER TWO-HANDED PNEUMATIC POWER PRESS CONTROLS are standard in shops all over the country. They increase safety in two ways: 1. They are true *two-handed* devices; both hands must be used to operate the press and operator cannot defeat purpose of control by tying down one lever. 2. They are so *easy* to operate they reduce fatigue, regarded as one of the leading causes of accidents.

SCHRADER CONTROLS PAY THEIR COST MANY TIMES OVER

SCHRADER CONTROLS are low in first cost and, unlike many protective devices, on the job every minute. Wherever used they reduce operator fatigue and the fear of accidents. This means better morale and increased production . . . especially on the *fag end* of the shift. Don't wait for an accident to remind you to buy **SCHRADER POWER PRESS CONTROLS** when you can save money, reduce accidents and increase production every day through their use. A few minutes thought now may give you years of safety. Write today for information and free literature.



Schrader Pneumatic Two-Handed Press Control. This device converts continuous action clutches to single action. Easily and quickly installed on most types of power presses.

NOTE: Foot operated controls and combinations of hand and foot operated controls are also available.

ALWAYS SPECIFY SCHRADER, THE COMPLETE LINE OF AIR CONTROL PRODUCTS



Schrader
PRODUCTS
CONTROL THE AIR

MAIL THIS COUPON TODAY

A. Schrader's Box, 480 Vanderbilt Ave., Brooklyn 17, N.Y.
Division of Scovill Manufacturing Company, Incorporated
Please send me information and free literature about the products I have checked in the boxes at the right.

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

Air Cylinders	<input type="checkbox"/>
Operating Valves	<input type="checkbox"/>
Press & Shear Controls	<input type="checkbox"/>
Air Ejection Sets	<input type="checkbox"/>
Blow Guns	<input type="checkbox"/>
Air Line Couplers	<input type="checkbox"/>
Air Hose & Fittings	<input type="checkbox"/>
Hose Reels	<input type="checkbox"/>
Hydraulic Gauges	<input type="checkbox"/>
Pressure Regulators & Oilers	<input type="checkbox"/>
Air Strainers	<input type="checkbox"/>
Uniflare Tube Fittings	<input type="checkbox"/>



4 basic steps to an outstanding safety record for your plant....

measures that give constant protection against the unthinking moment

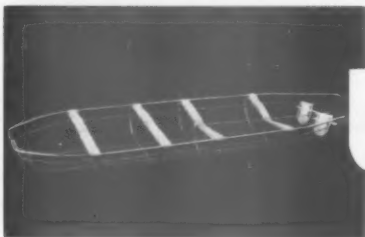
Junkin Swinging Die Closure →

For all primary, or blanking, operations. Swing link mounting gives ready accessibility to dies. Split lock device disconnects pedal when guard not in full protective position. Splinter-proof plastic shield provides full view of dies. Complete unit, easily installed.



Junkin Electro-Lock Shield →

Basic Point-of-Operation guard. Enclosed mercury switch permits operation only when movable safety glass shield is in full protective position. Bullseye lenses focus light directly on point of operation when shields are down. Complete unit, adaptable to wide variety of basic guarding applications.



← Junkin Interlocking Barrier Guard

For secondary, or forming, operations. Features automatic reciprocating barrier gate, controlled by mechanical interlock. Press trips only when guard is in complete protective position. Non-repeat principle limits press to single stroke. Entirely automatic, universally adaptable, easily installed.



← Junkin Splint-type Stretcher

When accidents do happen, transport victim in safest, easiest manner—in this rigid, lightweight stretcher. Construction permits patient to be carried horizontally or lifted vertically without danger. Canvas straps, footrests keep patient rigid and comfortable at any angle.

Write today for further information and name of nearest Junkin Distributor.

JUNKIN SAFETY APPLIANCE CO., INC.

930 WEST HILL ST.



LOUISVILLE 8, KY.

Canadian distributor—Levitt Safety, Ltd., Toronto and Montreal

The New
Hoffman

**ELECTRONIC
SAFETY GUARD**

gives you

INCREASED PRODUCTION
LOW MAINTENANCE COST
NO OPERATOR FATIGUE
NO ACCIDENT TIME-LOSS



New Electronically Controlled SAFETY and BARRIER GATE GUARD brings benefits to both management and workers

YOU can increase your plant power press production immediately with installation of the Hoffman Safety and Barrier Gate Guard. It gives the operator greater assurance, eliminates fatigue and accident time-loss. It gives you higher production per man hour.

The Hoffman Guard is an electronically controlled guard consisting of four major parts—Light Source and Photo Cell Assembly—Amplifier—Magnetic Treadle Control—Non-Repeat Micro Switch. The Barrier Gate Guard is an auxiliary unit and is used as a double safety precaution.

The Light Source and Photo Cell Assembly are positioned between the operator and power press providing a light beam between the operator and "Die Sets." Interruption of this beam renders the press inoperative. When the operator completely removes arms and hands from light beam a depression

on the foot treadle motivates Magnetic Treadle Control and the ram operates. One stroke operation is assured by the non-repeat Micro Switch. However, continuous stroke operation is possible with the By-Pass Switch, when desirable. Double protection is provided when Barrier Gate is used. If brake adjustment is incorrect Barrier Gate will fall when operator breaks light beam, completely enclosing "Die Set" area.

Failure of any of the electronic parts of the Guard renders press inoperative.

The Electronically Controlled Guard is designed for No. 5 presses or smaller. Guards for larger presses can be especially designed and engineered.

There is no engineering skill required to install or operate this Electronic Guard, but this Guard should not be purchased unless the buyer is ready and able to service it properly.

HOFFMAN ENGINEERING CORPORATION

ANOKA, MINNESOTA

Electronic Controls for Industry

HOFFMAN ENGINEERING CORPORATION

Department 2-3

Anoka, Minnesota

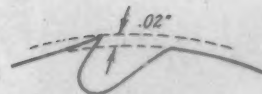
Please send free complete details about the Hoffman Electronic Safety Guard.

Name

Firm

Address

City State



WHAT THE PTI CUT CONTROL BLADE IS:

Each PTI Saw Blade has only 8 teeth instead of the customary 100. These teeth are entirely different from the conventional saw tooth — they project only 20/1000" above the non-cutting edge. Thus the cut of each tooth is "controlled" by the non-cutting edge, in contrast to the ordinary saw blade where each tooth cuts right down to its base. This relatively simple alteration in design actually works miracles in the performance of the saw blade.

PTI

PATENT
PENDING

CUT CONTROL

TESTED AND APPROVED

The PTI Cut Control Saw Blade is the first and original blade of this type. It was developed by one of the world's foremost saw manufacturers—and then thoroughly tested in the leading shops and laboratories of Europe and America for more than two years. It is the first saw blade of this kind tested by the Forest Products Laboratories, Madison, Wis., Timber Engineering Company, Washington, D.C., the University of Zurich, Switzerland, and other testing laboratories with favorable report issued in every instance.

Actual letters from delighted users in America and Europe crowd our files.

Gamble Brothers of Louisville, Kentucky, report:

"We have completed the first phase of the test run on the 'Cut-Control' 5-Tooth Carbide Tipped Rip Saw. This saw was installed in February of this year on a 2-1/2 ft. Diesel Chain Feed Rip Saw and has had a total of 2,000 operating hours, having run on both the day and night shifts. Three hundred and four thousand net feet of dimension lumber was passed over this blade, almost entirely in two species of lumber, oak and hard maple. The thicknesses ranged from 3/4 to 5/8. This saw was only removed from the arbor for washing and occasional hand honing of the carbide tips. During its entire operation the saw has produced a quality cut suitable for edge gluing."

New

PTI

SAFETY SAW BLADE



Takes the DANGER out of circular sawing! SAVES POWER • CUTS SMOOTHER • LASTS LONGER

Here is the greatest improvement in circular sawing—since the invention of the circular saw. The sensational new PTI Cut Control Saw Blade that brings long-needed safety and remarkable new efficiency to this important tool! Now—for the first time your shop can have a circular new safeguard in addition to the regular blade guards, splitters and anti-kickback holders—a safeguard that protects operators even if the conventional devices are inadvertently or carelessly removed.



one of the most serious causes of circular saw injuries.

2 Reduced Direct Injuries—Cut Control teeth do not drag the hand into the saw. The non-cutting edge acts as an effective stop to cuts and limits their depth.



3 Cuts Chips—Not Sawdust—Unique cutting action produces chips. Easier to clean. Eliminates fire hazard of spontaneous combustion.

4 30% to 40% Power Saving—Fewer teeth mean fewer cuts to achieve same results—hence less power consumption.

5 Longer Life Without Sharpening—When cutting off chips—the wedge action of the tooth does most of the work—which means less wear on the cutting edge of the teeth.



Regular blade Cut control blade

6 More Efficient Cutting—Each tooth is backed up better against body of blade. It is therefore more rigid, less likely to vibrate—and cuts more smoothly.

7 Quieter Running—Fewer teeth makes saw practically noiseless when running true.

8 Blade Does Not Crack—Blades are made of special Vanadium Steel. In addition—controlling of cut prevents overloading of teeth, a common cause of blade cracking.

PTI

INCORPORATED NSN 3
401 Broadway, New York 13, New York

Gentlemen: Rush me the following units:

Quantity	Blade Number	Blade Size

Please check:
☐ Money order or check for \$ _____ Send C.O.D.
 Name _____
 Address _____
 City _____ State _____

ORDER TODAY SATISFACTION GUARANTEED!

See your dealer today... ask for a demonstration. If he cannot supply you—order direct. Prices are for special Vanadium Steel blades, combination rip and cross cut, delivered, postpaid.

7" dia. blade \$4.95 12" dia. blade \$ 9.40
 8" dia. blade \$5.90 14" dia. blade \$11.40
 10" dia. blade \$7.50 16" dia. blade \$14.00
 (Prices on carbide tipped blades furnished on request.)

Canadian Distributor: The Preston Woodworking Machinery Co., Ltd., Preston, Ontario, Can.

These dependable

Bailey PRODUCTS

contribute to **STEEL MILL**
SAFETY

Bailey

MECHANICAL VALVES

Noted for their dependable operation under all conditions, Bailey Mechanical Goggle Valves provide a tight, positive seal for shutting off gas mains in emergencies or for repairs. Requiring a minimum of maintenance, they operate by a powerful clamping force which is applied equally at all points around the disc periphery. Regardless of time between operations, they open or close instantly. Sizes from 6" to 72", totally enclosed if desired.

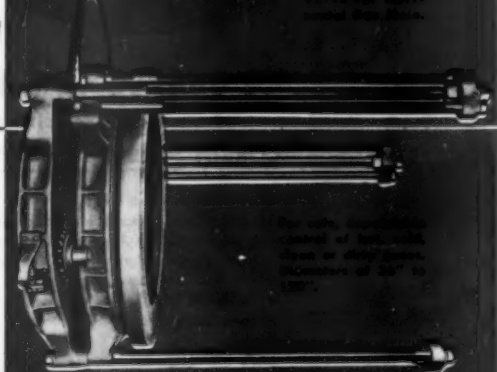


6" to 72" Bailey Mechanical Goggle Valve, totally enclosed.

Bailey

THERMAL VALVES

Operated by the lineal expansion and contraction of three sets of tubes spaced around a rigid steel flange, the Bailey Thermal Valve is always safe, dependable and ready. When steam is passed through the tubes, thermal expansion creates a powerful force that instantly frees the goggle plate and permits valve operation. When the steam is removed, contraction closes the flanges against the plate, forming a tight seal. Can be operated by hand in case of steam failure.

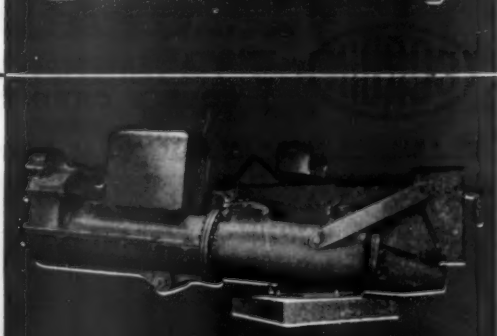


The only valve that can be operated in emergencies by hand or by steam.

Bailey

CLAY GUN

Powerful electric drive provides the piston pressure necessary to maintain long and uniform tapping holes. Special Bailey Lever Action forces the nose of the gun into position with positive accuracy. Piston is driven by an electric motor through reducing gears. The Bailey Clay Gun is dependable and safe.



The only gun that can be operated in emergencies by hand or by electric.



1221 BANKSVILLE ROAD

PITTSBURGH 16, PA.



BE SURE
WITH



NO CHANCE FOR ACCIDENTS

when EACH repairman uses a
CORBIN PERSONAL-SAFETY PADLOCK

There is no risk of a "forgotten man" when each electrical repairman, boiler cleaner, etc., locks out the switch or valve with his own Corbin Personal-Safety Padlock.

Corbin Personal-Safety Padlocks have disc tumbler mechanisms with 200 possible key changes. If desired, they can be furnished alike or master-keyed. A metal tag for employee's name or number is attached to the hardened-steel shackle.

We will gladly send you further information about Corbin locks for Personal-Safety systems or security systems — or we will help you work out such systems based on the specific needs of your plant.

CORBIN CABINET LOCK
DIVISION

THE AMERICAN HARDWARE CORPORATION • New Britain, Conn.



NATIONAL SAFETY SERVICE

Complying with all Safety Codes
Safeguarding



**POWER PRESSES — WOOD WORKING MACHINES
GRINDING OPERATIONS AND UNDER-FOOT**

**DUST COLLECTORS, MAGNIFIERS for INSPECTION
FIRST AID EQUIPMENT**

The Surty Mfg. Co., Inc. 4139 W. KINZIE ST. CHICAGO 24

Machine Guarding

(From page 149)

enclosure guards should always be considered integral parts of the dies.

Hood enclosure and cover guards are used on woodworking machines and many other types of equipment. Frequently, such guards are automatic in action. Others are of rigid construction.

Nip hazards, such as rubber mills, calender rolls, dough breaks, and others, can be protected by sensitively adjusted controls that operate dynamic brakes when contacted by any part of the operator's body. These guards stop the machine in the shortest possible time.

Two-hand controls are frequently installed on power presses, bakery machinery, guillotine paper cutters, and other types of equipment where barrier guards are not practicable.

Interlocking devices are used on centrifugal extractors, dough mixers, some types of pressure vessels, tumblers and other machines that require covers or barricades in place before the starting control can be operated.

Supervision. Operators occasionally make safety devices ineffective in an attempt to speed up output or make operation easier. This is especially frequent with two-hand controls. Operators should be warned of the hazards involved and instructed in the use of safety devices.

Frequent checks should be made to see that instructions are observed and that safety devices are functioning.

Photoelectric devices offer interesting possibilities. So far, their principal use has been on large slow speed presses having long strokes and friction brakes. Photoelectric cells are placed on the press in such a manner as to provide a curtain of light across the open side giving access to the point of operation. If the light curtain is broken during the motion of the press, the ram is quickly brought to a stop.

Power Transmission

Mechanical power transmission apparatus includes shafting, belting pulleys, gears, starting and stopping devices, and other moving parts of equipment used in the mechanical transmission of power. Also included are prime movers, intermediate equipment, and other machines.

Power transmission parts, particularly in modern machine installations, contribute a relatively small proportion of the total number of injuries. Nevertheless they are the sources of many permanently disabling injuries, and should not be neglected.

Individual motor drives and modern designs with moving parts enclosed have eliminated much guarding on the job. However, some guards must still be added when machines are installed.

Materials

Sheet metal, perforated metal, expanded metal, heavy wire mesh or bar stock may be used for most types of guards.

Transparent plastic is used where inspection of moving parts is necessary and the strength of metal is not needed.

Shatter-proof glass is used in similar situations, particularly where illumination of guarded parts is essential and the flexibility of plastic is not required.

Where flying particles may mar the surface of safety glass or plastic, the surface may be protected by replaceable glass covers.

Wooden guards are relatively low in strength but are sometimes used where splashes and fumes from corrosive substances would attack iron or steel.

Where resistance to rust is essential, or there is possibility of damage to the machinery from iron or steel, guards of aluminum or other soft metal may be used.

Electric Equipment

(From page 150)

stalled in every circuit. Protection of this kind, both for personnel and for equipment, is important. These devices open the circuit automatically in the event of excessive current flow due to accidental ground, short circuit, or overload.

Types of fuses include link, expulsion, plug and cartridge fuses.

A link fuse is a strip of fusible metal between two terminals of a fuse block. If exposed, it may scatter hot metal when it blows.

Expulsion fuses are for use in central stations, power houses or on overhead lines. When they blow the gases generated aid in quenching the arc.

Plug fuses are used on circuits which do not exceed 30 amperes at not more than 150 volts to ground. The type which cannot be bridged inside the holder is recommended.

Cartridge fuses have fusible metal strips enclosed in fiber tubes. Those which indicate when the fuse is blown and the refillable types in which fusible elements may be replaced are available.

Where practicable, fuses should be protected by a switch which will make the fuses dead when opened. Insulated fuse pullers should be kept on hand for pulling and replacing fuses.

Circuit-breakers are used in high voltages or large current capacity circuits, and are becoming more common in many kinds of circuits. They may be instantaneous in operation, equipped with timing devices, manually operable, or power operable.

Switches

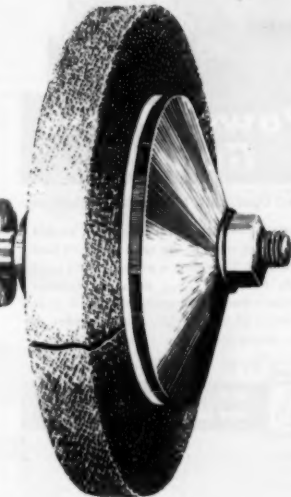
Available switches include snap switches, knife switches, enclosed ex-

THE STORY OF THE BROKEN GRINDING WHEEL!

A whirling grinding wheel can tell its own story of havoc when it breaks. . . . But in this case, *Perks Safety Washers* do the telling!

A test conducted by the StaSafe laboratories used the NEW Synthane impregnated fabric *Perks Safety Washers* and an 8" grinding wheel cracked in two places. At 5000 RPM—an outer surface speed of 10,500 feet per minute—the new *Perks Safety Washers* held the wheel intact!

Standard Safety does not recommend to you the use of broken grinding wheels—even with *Perks* . . . but Standard Safety does recommend *Perks Safety Washers* as a precaution against possible tragedy in your company.



Perks Safety Washers are easily installed on any size grinding wheels. Keep your equipment and personnel safe-guarded. Write now for Bulletin No. 507 containing complete information about *Perks Safety Washers*!

STANDARD SAFETY EQUIPMENT CO.

232 W. Ontario St., Chicago 10, Ill.



DAINGEROUS!

There's a right way and a wrong way to close hopper, bottom, rat doors with latch type locks. Old fashioned hand, foot and bar methods frequently result in ruptures, strained backs and smashed fingers. You can prevent these and other serious injuries by the modern method—the use of *Precofit Safety Tools*.

It's your responsibility. Your men will thank you for providing them with the accident-preventing, work-saving, time-saving *Precofit Safety Tools*. Write today for free folder.

The Trumbull Mfg. Co.
WARREN, OHIO



Protect Operators • Increase Production

Wiesman cam-action press guards enable operators to work at top speed without fear of accident. Guarding is effective and completely automatic . . . does not hamper operator's vision or movement. For all sizes and styles of presses. Used by hundreds of firms. Inexpensive . . . easy to install.

Over 30,000 sold



Write for descriptive folder and 30-day FREE trial offer.

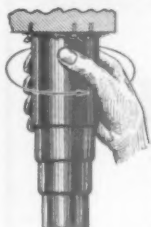
Name _____

Address _____

Title _____

Wiesman Manufacturing Co.
31 South St. Clair Street • Dayton 2, Ohio

Guide Pin Covers



PROTECT OPERATOR AND GUIDE PINS

Effectively guard against injury to operator, die and press on operations where bushings leave the guide pins. Protect pins and bushings from chips and dirt when entire pin and bushing are covered. Inexpensive, easy to attach.

Felt Oiler Ring in top units provides POSITIVE lubrication.



WRITE TODAY FOR DESCRIPTIVE FOLDER AND PRICE LIST

Name _____

Address _____

Title _____

Wiesman Manufacturing Co.
31 South St. Clair Street • Dayton 2, Ohio

ternally operable air-break switches, and oil switches. Those designed for controlling individual motors and machine tools and for lighting and power circuits are of the enclosed type.

Open-knife switches are undesirable because of exposure of live parts and because of the arc formed when the switch is opened. It is advisable, therefore, to enclose knife switches in grounded metal cabinets having a control lever extending through a slot in the cover.

Oil switches have contacts which operate while submerged in oil. They are especially desirable in circuits of 750 volts or more and may be used in lower voltage circuits.

Snap switches, such as the push-button or toggle types, usually have all live parts enclosed. Flush switches should be installed in metal boxes, and surface switches used in open wiring and moulding work should be mounted on porcelain or composition sub-bases. These switches should indicate whether the circuit is open or closed.

Snap switches are preferable to key or pull-chain sockets. If key sockets are used, porcelain, moulded plastic, or other non-conductive types are recommended. Pull-chains should contain non-conductive links.

Cords, Sockets, Lamps

Extension cords should be of a type listed by Underwriters' Laboratories and labeled to show that they meet all requirements of the National Electrical Code. They should be inspected regularly. Kinking or excessive bending of cords should be avoided.

Ordinary lamp cord should not be used where it will be exposed to mechanical wear or to moisture—never for extension lamps in boilers, tanks, or on damp or metal floors.

Cord for portable tools and equipment is made in several grades. Rubber-sheathed cord should be used with tools and lamps in boilers, tanks and other grounded enclosures.

For heating devices, such as electric irons and water heaters, the cord has an insulating covering containing flameproofing material such as asbestos fiber. It resists high temperature but not wet conditions.

Sockets should be of porcelain, non-conducting plastic, or rubber covered. Ungrounded metal-shell sockets are not recommended.

Extension lamps are sometimes used under conditions where a shock of 110 volts might be fatal. Safe cords and lamp holders must be provided and maintained in good condition. Handles should be of non-conducting material and there should be no metallic connection between the lamp guard and the socket shell.

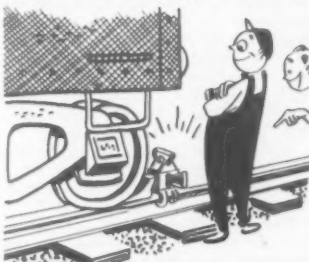
Miniature voltage. Portable transformers which step the lamp voltage down to 6 volts are frequently used where the shock hazard is serious.



A RUNAWAY CAR



MEANS A COSTLY FLIGHT



USE M and M CLAMPS



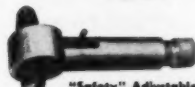
TO HOLD CAR WHEELS TIGHT

SAFETY FIRST SUPPLY COMPANY

425 Magee Street, Pittsburgh 19, Pa.

"SAFETY" MARKING TOOLS HELP PREVENT ACCIDENTS**► GIVE BETTER IMPRESSIONS! ► LAST LONGER!!****"Safety"
Wedge-Grip
Stamps**

To keep pace with industry's safety achievements, we are constantly improving steel stamps and stamping methods through the use of our special "Safety" Mecco Alloy Steel... which eliminates mushrooming and spalling. A few "Safety" marking tools are illustrated... many more are available to meet any marking requirement. Write today for Bulletin J-547.

**"Safety"
Heavy Saver
Letter and
Figure Stamps****"Utility"
Marking Outfit****"Safety" Wedge-Grip Type Holder****"Safety" Adjustable
Hand Tool Holder****"Safety"
Box Type
Holder**

SAFETY
Is Everybody's Business!

M.E. CUNNINGHAM CO.
SAFETY STEEL STAMPS

Make Marking Safe
with "SAFETY" Tools

200 East Carson Street

Pittsburgh 19, Pa.

CONSULT...**C. B. CANNON**

on

**SAFEGUARDING
MACHINES**

and

**EDUCATING
WORKERS**

care of

SAF-TY
**Manufacturing
Company**

6200 Wentworth, Chicago 21



THE NEW
AND IMPROVED
**POSSONS
POSITIVE
DEVICE**

assures

**Positive Safety
Fast Production
Smooth Operation**

A type for every kind of press. Meets all safety requirements. More than 25,000 in use! Write today for catalog and names of users near you.

THE POSITIVE SAFETY MFG. CO.

4403 Perkins Avenue, Cleveland 3, Ohio

**FINGERS
must be saved—
KEEP THEM OUT
OF PRESSES with
LITTELL**



30 Pres-Vacs cost less than the average cost of only one press accident.

Operated by
Compressed Air

Pres-Vac



- Blanks are fed from a distance of 14 inches
- Eliminates need of putting fingers under press ram
- ▶ **BOOST PRODUCTION 20% TO 100%**
— Reported by users
- ▶ **ELIMINATE DIE BREAKAGE**
— Assures Feeding Blanks One at a Time
- ▶ **CUT INSURANCE COSTS**
— Fewer Accidents Mean Lower Premiums.

Littell Pres-Vac Safety Feeders are made in Single and Multiple types in a variety of cup sizes and styles.

F. J. Littell MACHINE CO.
AIR DIVISION
4165 RAVENSWOOD AVE., CHICAGO 13, ILL.
— Distrib. O'Reilly, Deppert and Cleveland —



Insist on "Engineered" Safety

with "ALL AMERICAN"
SAFE-SWEEP Press Guards

Designed by Specialists in
Safety Equipment



Streamlined Quick-Mounting Type with new Pivot Slot Action. No cams, springs, buttons, cables. Fits any press. No power drain. Sweep starts or stops at any point. Meets all safety laws and standards.

Write for Sweep Bulletin

We build a modern line of safety equipment, including Special Transmission Units and Electronic Attachments for Pullback Guards—also Wristlets, Cords, etc.

Write for literature and prices

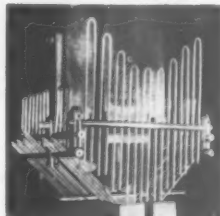
"Point-of-Operation" Safety Enclosure

Quick-Locking Type with only Four Socket Screws controlling all bars (No set screws).

Provides maximum flexibility for easy adjustment to meet all conditions. For presses with small or special dies. Also available in square type, with or without set screws.

SAFETY IS OUR BUSINESS

Write for Bulletin and tell us Your Problem



ALL AMERICAN SAFETY EQUIPMENT COMPANY

11 South La Salle St., Chicago 3, Illinois — RA ndolph 6-8481

SAFETY ENGINEERS • DESIGNERS • MANUFACTURERS • DISTRIBUTORS

Tools

(From page 151)

should be kept in the toolroom. These should be straight-grained wood, free from slivers. Hickory, ash and maple are preferred. Handles should be fitted by an experienced person.

Insulated tools. For working around electric equipment, tools with insulated handles are frequently used. These provide desirable protection but are not a substitute for rubber gloves and other protective devices.

Marking tools. Steel stamps and holders for stamping identification marks on machine parts and other metal surfaces are available in alloys which resist mushrooming and do not chip readily.

Car movers. For moving cars on rails, several types of car movers are available. These are safer and more efficient than crowbars for this work.

The Tool Room

Safety and efficiency in tool control often result from installation of a tool crib with a competent attendant, when enough tools are handled. In addition to routine checking in and out, the attendant can see that workers obtaining such tools as mauls, cold cutters and drills also have goggles for the job.

Tools showing signs of abuse on return can be brought to the foreman's attention so that bad practices by users can be corrected.

Display boards are often used for maintenance and repair tools and do much to encourage return of tools. In other plants, racks or bins which can be moved to the work area are used. These require periodic checking to see that tools are in good repair.

An individual workman's tools should be kept in a box or rack convenient to his work area. The box should have designated places for such things as wire brushes, chisels, saws and knives to avoid exposing sharp edges.

Inspection. Permissible wear limits for tools should be set up as a guide for inspection when they are returned to the crib. Lacking such standards, the attendant or inspector should be qualified to pass on the condition of the tool for future use.

Periodic inspections of all tool operations are needed to insure efficient control. Inspections should include housekeeping in the tool crib, tool service, number of tools in the inventory, handling procedure, and condition of tools in general.

Maintenance and repair require adequate facilities, such as work benches, vises, forge or furnace for

—To page 164

**A SPARK CAN PUT
YOU OUT OF BUSINESS**



USE BERYLCO SAFETY TOOLS

Don't take a chance. On any job where there is the remotest danger of fire or explosion, it pays to use Berylco Safety Tools. Berylco Beryllium Copper Tools reduce the danger of sparking in the presence of inflammable liquids, gases and dusts. In addition, they are nonmagnetic and noncorrosive. Berylco Safety Tools resist heavy impact, retain their cutting edges, deliver high performance with long life.

Balance the loss of your plant, your irreplaceable equipment, and your

continued production against the low-cost protection offered by these fine quality beryllium copper tools. Berylco Safety Tools are sold exclusively through jobbers; write for the name of the one nearest you. Use his stock as your inventory; rely on him for prompt service and help.

Write for Catalog 348, which describes and illustrates the complete line of Berylco Safety Tools.



BERYLCO

THE **BERYLLIUM** CORPORATION

DEPT. 1C, READING 14, PENNSYLVANIA

*His eyes are vital to Production!
Keep them off the Casualty List!*

**HE LOST AN EYE!
YOU LOST A MAN!**



GUARDAIR will save BOTH!

*For
further information
write - phone
or call*

Guardair Mfg. Company
30 HOLLISTER AVE.
BRIDGEPORT 7, CONN.
Phone 68-3909

**GRAY
MILLS**

AGITOR

CLEANING UNITS

**Promotes Accident Prevention
Eliminates Fire Hazards
Encourages Cleanliness
Has Many Safety Features**

Used in . . .

IN THE TOOL ROOM for cleaning dies, jigs, machined parts, etc.

IN PRODUCTION for removing oils, chips and soil from castings, assemblies and parts which are handled individually.

IN THE MAINTENANCE DEPARTMENT AND CUSTOMER REPAIR DEPARTMENT for cleaning machinery, appliance parts, etc.



AGITOR safety features reduce fire hazards. Besides, every shop can profit—save time by using this parts cleaning system. Semi-automatic cleaning action saves skilled hands for skilled work. Pays for itself in efficiency, faster and better parts cleaning.

4 sizes. Prices start at only \$119.50.

Only Agitor Gives You Exclusive 3-Way Action



1. Solvent discharged jet-like agitates tank for soak cleaning.



2. Fountain like discharge for large parts.



3. Stream of solvent thru hose used for flushing off parts and assemblies.

**USES COLD HIGH-FLASH SOLVENT
NON-TOXIC**

AGITOR uses a safe, ready-to-use, cold cleaner. High solvent action on grease, oils. Easy on hands. Listed by Underwriters' Laboratories.



Send for New Catalog "Graymills Agitor in the Industrial Field"

GRAYMILLS CORPORATION, 2015 Ridge Ave., Evanston, Ill.

Alert Safety Engineers
Specify...FIRE -
SAFEPlastic Handle
Drivers**VACO**
BREAK-PROOF
SHOCK-PROOF**Screw Drivers**Eliminate
Fire Hazards*Every*
Driver Equipped with
Fire-Safe Plastic Handle!

No longer is it necessary for safety-conscious industrial screw driver buyers, because of fire hazard, to pass up the many extra advantages of the plastic-handled screw or nut driver. The new Vaco Amberyll handle is slo-burning, will not support combustion, carries the Underwriters' Laboratories Recognition Service Mark on every item in the line.

**More Than 250
Styles and Sizes**

Now you can select a completely safe driver for every industrial need from the more than 250 different drivers made and stocked by Vaco. Whether it's a Phillips, Reed and Prince, clutch head, screw holding or regular driver, it's not only shock and break proof, but safe. Round, square, offset... steel, non-spark beryllium or insulated blade... all have Vaco's exclusive, fire-safe Amberyll handle.

Every Driver Made to Quality Standards Throughout

In addition to a fire-safe handle pioneered by Vaco, Vaco drivers also bring you the finest in materials and workmanship for low, over-all cost. Screw driver blades are made of tough SAE 6150 Chrome Vanadium Steel heat treated in the most modern electric furnaces for exact temper, resilience and long wear.

**Safety Engineers! Write
Today for FREE Catalog!**

To help you get acquainted with the world's most complete line of screw drivers, we suggest you write for free catalog. 50 heavily illustrated pages including complete tables for fitting the driver to the screw are yours for the asking. Write, today!

VACO PRODUCTS CO.

317 E. Ontario St., Chicago 11, Illinois
In Canada: Vaco-Lynn Products, P.O. Ltd.
1272 Notre-Dame St. W., Montreal 10, Quebec

Tools

(From page 162)

hardening and tempering, tempering baths, repair tools, grinders, goggles and adequate lighting. Repairs should be done by thoroughly trained men.

An adequate supply of repair parts should be kept on hand.

Non-Sparking Tools

Where hand tools may strike a spark and ignite flammable dust, gas or vapor, non-sparking tools are widely used. These tools are made of non-ferrous metals such as aluminum, bronze, brass and beryllium-copper.

Non-sparking tools made of these alloys include hammers, chisels, punches, prybars, screw drivers, scrapers, spatulas, picks and shovels. Special tools of any type can be made to order.

Being softer than steel, non-sparking tools are less likely to break off fragments from the metal being worked on by the tool.

With continued use, these tools may become impregnated with particles of foreign substances which may cause sparks if not removed.

Non-sparking alloys are more expensive than steel and these special tools are used only where there is an explosion hazard.

Portable Electric Tools

General classifications of hand-operated power-driven tools are:

1. Abrasive tools, such as disk and portable belt sanders, polishers, and bench and flexible shaft grinders.
2. Drills.
3. Saws and other cut-off tools, routers, etc.
4. Assembly tools, such as screw drivers, nut runners and tappers.
5. Hammers.
6. Sheet metal shears.
7. Fans.

Portable electric tools are generally designated as:

Light duty, for intermittent use on light work.

Special duty or standard duty, for slightly heavy work or fairly continuous operation.

Heavy duty, for continuous operation and production service or for heavy work.

Safety switches, which operate the motor only while the switch is held in the closed position by the operator, should be used.

Three possible methods of preventing electric shock to the operator are: (1) Prevent electric contact with the shell; (2) Use non-conductive material for the shell and all parts which the operator may handle; (3) Ground the shell by means of a third wire or central grounding.

Grounding is generally considered the most practical method of safeguarding the operator against shock.

"NO OPEN HANDLING
OF INFLAMMABLE LIQUIDS"
WITH

Insto-gas
TORCHES
and FURNACES



**NOW IS
THE TIME**

to check the portable heating equipment in your plant. If your torches and furnaces are not listed by Underwriters, be sure to get Insto-Gas immediately. Insto-Gas is non-explosive from concussion, chemically staple and non-toxic. Insto-Gas cylinders are I.C.C. approved, they have diaphragm type valves, positive closing spring relief valves and are equipped with excess flow safety checks. For 17 years these safety features have made Insto-Gas first choice in all kinds of plants.

MANY USES

Insto-Gas instant lighting torches and melting furnaces provide safe portable heat for all kinds of maintenance and repair work such as removing bearing metal, pre-heating, annealing, melting babbitt, thawing frozen pipes, relining vats and tanks, melting metal, paraffin, asphalt or tar, soldering copper pipe fittings and all electrical and plumbing work. Insto-Gas is listed by both Underwriters' and Factory Mutuals' Laboratories.

Write today for literature and name of nearest distributor.

Insto-Gas Corporation - Detroit 7, Mich.

Plant Protection

Defense Against Fire

ORGANIZATION and equipment for the prevention of fire losses are important at all times. In a national emergency when production for military and civilian use is urgently needed, and materials and manpower needed for replacement are scarce, reduction of losses makes an important contribution to the nation's economic and military strength.

Fire safety involves:

1. Fire prevention engineering
2. Early detection and extinguishment
3. Limiting damage due to fire and fire extinguishment
4. Protection of personnel from fire and resulting panic.

Helpful sources of information are fire insurance carriers, local insurance inspection bureaus, municipal fire departments, National Fire Protection Association, National Board of Fire Underwriters, Underwriters' Laboratories, Associated Factory Mutual Laboratories.

Causes. The majority of fires in industrial property can be traced to four general causes:

1. Open flames and high temperatures—stoves, furnaces, ovens, lamps, welding and cutting, dryers, heated pipes and surfaces, matches and smoking.
2. Friction—hot bearings, belts, cutting, grinding, drilling.
3. Electricity—defective wiring, arcs, sparks, heat resistances.
4. Chemical reactions—spontaneous ignition, use of reagents, acids, oxidizing agents.

Incendiary fires. These may be the acts of enemy agents, individuals with grievances, and trespassers who try to cover up theft or are merely careless with fire. The situation may call for a general tightening up of plant protection measures, more careful identification of employees and, in some cases, establishment of restricted areas. Regional offices of the Federal Bureau of Investigation are ready to work with industry in the prevention of subversive activities.

Planning Protection

The first step is a survey of the plant—its layout, manufacturing processes, materials handled, storage methods, and fire protection facilities. With this information, plans can be

made for improving structure and layout, installing additional or different equipment where necessary, and training employees in methods of prevention and extinguishment.

The municipal fire department should have a prominent place in all plans. Its members should be familiar with the plant and its problems. They can also give helpful suggestions on training and equipping plant fire brigades.

The plant should not depend on the city fire department alone. Even under the best conditions, it takes time for outside apparatus to reach the fire, and in times of emergency the department may be busy elsewhere.

In many plants, fire protection is one of the responsibilities of the safety department. Even in larger plants where there is a division of duties, the safety department has an important part in any program involving protection of life and property.

The plant organization for fire-fighting may range from a few trained employees with hand extinguishers to a full-time private fire department rivaling those of some cities.

Fire squads. The first step for any plant is to organize fire squads. A

squad may consist of five or six men in each department. They should act as inspectors, reporting and correcting conditions which might cause fires. They should be taught the use of extinguishers, by actual demonstration of equipment on small fires where practicable. Men so trained will keep their heads in an emergency. They will not only put out many fires before they do any serious damage, but will also help to prevent panic.

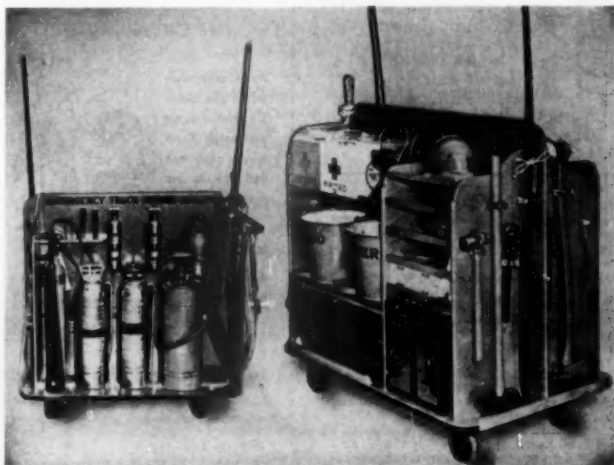
Fire brigades. For the larger plant, hydrants and hose systems are important items of protection and they need trained men to use them. Members of department squads can be members of the plant fire brigade.

These men should be familiar with all details of the plant, its protective system and water supplies. They should be drilled frequently in handling hose streams, which is no job for an amateur. The organization

—To page 174

IN THIS SECTION

Defense Against Fire	165
First-Aid Extinguishers	166
Automatic Protectors	167
Static Electricity	172
References	178
Cleaning Up Fire Hazards	179



Hand trucks carrying extinguishers and other fire-fighting and rescue equipment can be moved quickly to any location in a building.

First-Aid Extinguishers

PORTABLE extinguishers can be brought into action in the vital minutes before the company or city fire brigades can reach the blaze. Their prompt use by employees has prevented a vast amount of damage by fire and water.

Effectiveness of extinguishers depends on:

1. The right type for the risk. The wrong type may actually spread a fire, or create other hazards.
2. Correct location. If the employee must go too far to reach one, or if access is blocked, valuable minutes may be lost.
3. Regular inspection and maintenance. Apparatus is subject to deterioration and misuse.
4. Training of employees. The best extinguisher is useless in the hands of a person untrained in emergency procedure.

Types and Uses

Common types of extinguishers are:

1. Soda-acid
2. Vaporizing liquid
3. Carbon dioxide
4. Foam
5. Dry chemical
6. Gas cartridge
7. Hand pump

Some extinguishers are available in both hand and wheel types. The wheel type is highly mobile and the extra extinguishing capacity is often needed.

For Class A (Ordinary Combustibles) Fires Only:



The Soda Acid Extinguisher is filled with a solution of bicarbonate of soda. A bottle in the top contains sulphuric acid. When the extinguisher is turned upside down, the chemicals mix, forming a gas which propels a stream of water.

Most extinguishers of this type have a capacity of 2½ gallons. They provide a stream of 30 to 40 feet lasting about one minute.

Types of Fires

Fires have been classified by underwriters and manufacturers in three main groups.

Class A. Fires in ordinary combustible materials, such as wood, paper, textiles, and rubbish. They require quenching or cooling effects of water or solutions containing large proportions of water.

Class B. Fires in flammable liquids, such as gasoline, solvents, oil, grease, paint, varnish and lacquers, where blanketing or smothering effect is essential.

Class C. Fires in electric equipment, such as motors, generators, and switch panels. These require a non-conductive extinguishing agent.

Fires in motor vehicles, aircraft and motorboats have the same problems of extinguishment as Class B but equipment must be portable. Extinguishing agents must be nonfreezing.

The gas cartridge extinguisher looks much like the soda-acid. It also operates the same way except that after it is inverted it must be bumped on the floor. This drives a pin into the cartridge, releasing the compressed gas which forces water through the hose. The extinguisher may contain either plain water or water with an anti-freeze chemical added.



The pump tank is made in 2½ and 5 gallon sizes. Plain water or a non-freezing solution can be used. Hard pumping will force a stream 30 to 40 feet. It is difficult to use while being carried. Somebody else can refill it while it is in use.

For Class A and Class B Fires:

These extinguishers are suitable for use on Class A fires in ordinary combustibles and Class B fires in flammable liquids. They should not be used for fires in electrical equipment.

The foam extinguisher is shaped like the soda-acid and is operated the same way. In the outer part of the extinguisher is a solution of water, bicarbonate of soda and a foam making ingredient. The inner chamber contains water and aluminum sulphate.



FIRE EXTINGUISHMENT

Keep extinguishers in the clear. Do not tamper with them. Know where they are and how to use them.



In case of fire:

1. Turn in an alarm at once.
2. Use the right type of extinguisher.
3. Use equipment correctly. Do not delay.
4. Make certain the fire is out.
5. Be sure the equipment is made ready for re-use.



SAFETY INSTRUCTION CARD No. 650
National Safety Council

PRINTED IN U.S.A.

When the extinguisher is turned upside down the chemicals mix and force out a stream that looks like foam. The extinguisher contains 2½ gallons of liquid and generates eight times that amount of foam.

Foam extinguishers also come in 10-, 20- and 33-gallon wheeled units.

The loaded-stream extinguisher looks and operates like the gas cartridge type. Instead of water it contains a special solution of an alkali-metal salt.

Extinguishers which may be used on Class B and C fires:

These are the only extinguishers which may be used safely on Class C fires (electrical equipment) as well as flammable liquid, or Class B, fires. They do not contain water.



The vaporizing liquid extinguisher, one-quart size, is one of the most familiar types. It contains carbon tetrachloride. It is operated by pumping the handle. In contact with heat the liquid turns into a heavy vapor which blankets and smothers fire.

In addition, vaporizing liquid works effectively on Class A fires. Range is about 20 feet and stream last 45 seconds.

Larger units of ½- to 3-gallon capacity are operated by stored gas or air pressure.

The carbon dioxide extinguisher discharges gas through a horn-like nozzle by operating a hand wheel, squeeze grip or trigger type mechanism. These extinguishers are available in a wide range of sizes, containing from 2 to 750 pounds of carbon dioxide. The larger units are mounted on wheels. The gas is non-corrosive and leaves no residue.



Successful operation of this type of extinguisher requires a close approach to the fire.

The dry chemical extinguisher operates by squeezing a handle or turning a handwheel at the top, which punctures a cartridge of carbon dioxide in the neck of the extinguisher which forces bicarbonate of soda out through the hose. The powder is treated to prevent caking.



The 15-, 20-, 25- and 30-pound sizes have a range of 10 to 12 feet. The 140- and 300-pound extinguishers can discharge a stream 35 to 45 feet or a fan shaped stream of shorter range.

—To page 177

Automatic Protectors

DEVICES which automatically detect fire, sound alarms and put out fires are standing guard over life and property 24 hours a day. These advantages are most apparent when the plant is shut down at night or on week ends and holidays but they are valuable in supplementing human watchfulness when men are at work.

These automatic plant guards are of two types:

1. Fire detection and alarm systems.
2. Sprinkler and chemical extinguishing systems.

Signal Systems

Signal systems of various types detect fires and give alarms, and supervise sprinkler systems, water supplies, and watchmen's service.

Signal systems are operated on three main plans:

1. **Central station system.** Signals are transmitted to an independent central station where they are recorded and proper action for the emergency taken. The central station may serve several companies.

2. **Proprietary system.** Similar to a central station but controlled and operated by the owner of the protected property.

3. **Local system.** Owned and operated by the protected company but does not have an operator constantly on duty at a central station.

Detectors and Alarms

Fire detection and alarm devices operate on the mechanical, pneumatic-electric, straight electric, and electronic principles. Some of the newer types are based on some form



For Glidden's New Solvent Extraction Plant—a BLAW-KNOX SYSTEM OF FIRE PROTECTION

Actuated by sensitive rate-of-rise thermostats, Blaw-Knox Sprinklers go into immediate action . . . sending a heavy, quenching blanket of water to the danger spot, extinguishing the fire and protecting adjacent areas. Blaw-Knox Fog Nozzles have no screens to clog, do not require treated water and maintain their effective spray pattern even at reduced pressures.

At your request a Blaw-Knox engineer will make a survey of your fire hazards, prepare a preliminary layout that will give you the utmost in fire protection and submit an estimate of costs—all without obligation.

Blaw-Knox Fire Protection Systems carry the approval of all insurance underwriters.

BLAW-KNOX SPRINKLER DIVISION

OF BLAW-KNOX CONSTRUCTION COMPANY
829 Beaver Ave., N.S., Pittsburgh 12, Pa.
Offices in Principal Cities

Deluge Systems, Wet Pipe Systems, Dry Pipe Systems, Water Spray and Fog Systems, Rate-of-Rise Sprinkler Systems, and Foam and Carbon Dioxide Extinguisher Systems.

"LITTLE JOEY SPRINKLER"



Testing sprinkler control valve. Control panel in background automatically indicates any tampering with master valves in the building.

**FASTER...
...MORE
EFFECTIVE
FIRE
CONTROL**

**WITH THE
ANSUL
Stream
Pattern**

**...plus
BETTER
HEAT-SHIELD
PROTECTION**



Exclusive Features

- Water-tight construction.
- Provides a modified cone-shaped stream pattern without hole in the center of the stream.
- Each nozzle gas pressure tested after assembly.
- Special spring loaded packing to insure lasting water-tightness.
- Designed for use by inexperienced operators.
- Low velocity, more effective stream of dry chemical.

Why Advertise the Nozzle! . . .

. . . because the nozzle on your ANSUL Dry Chemical Fire Extinguisher is water-tight . . . it won't become inoperative due to corrosion or caking of dry chemical within the working parts . . . the most inexperienced man in your plant can use the ANSUL extinguisher effectively . . . and only Ansul has a nozzle to meet all of these requirements!

If your hazards require special long range straight stream nozzles, you can get Ansul Extinguishers equipped with these nozzles at no extra cost. With Ansul Dry Chemical Fire Extinguishing Equipment you have not only the best fire protection but also a choice of models and designs to meet your requirements.

Send for File No. 656. You will receive our latest catalog, a Periodic Inspection Record Chart, "Fundamentals of Fire Extinguishment" and information about Ansul Dry Chemical Piped Systems for automatic protection.

ANSUL

CHEMICAL COMPANY

FIRE EXTINGUISHER DIVISION

WARIKETTE • WISCONSIN

DISTRIBUTORS

IN ALL PRINCIPAL CITIES IN THE

U.S.A., CANADA AND OTHER COUNTRIES

**"PLUS-FIFTY"
DRY CHEMICAL
IS MORE DEPENDABLE
ALL-WAYS!**



THIS TRADE MARK ASSURES YOU OF QUALITY PRODUCTS

of electronics in conjunction with thermostats. These are more sensitive than the earlier types.

Electronic devices have been installed on ships where air samples from the cargo holds are drawn through a cabinet past an electric eye or gas analyzer which detects smoke instantly and sounds an alarm. Detectors similar to the marine type can be used in many industrial locations.

Where fires may start slowly and smolder for some time, photoelectric equipment often detects smoke before heat-actuated devices are affected.

Watchmen's supervisory systems transmit and record signals made at watchmen's key stations. This system is frequently combined with fire alarm systems. A plant guard's failure to check in at any station along his route is promptly recorded at the control desk or panel.

Such supervision has checked many incipient fires, prevented many robberies and brought aid to watchmen rendered helpless by accident or sudden illness. It has also prevented much water damage by sprinklers.

Automatic Sprinklers

Sprinklers go into action automatically soon after a fire breaks out, deluging the area below. They operate in heat and smoke and control fires that could not be reached by other means. Since their introduction in 1875 they have played an important part in reducing industrial fire losses.

Over a period of years, insurance records show that more than 95 per cent of fires in sprinklered buildings were extinguished or held in check by sprinklers.

In the few cases where sprinklers have failed to function when needed, the fault has rarely been due to the sprinkler mechanism. Deficient water supply, freezing, defective dry pipe valves, foreign material in the system, corrosion, obstruction of sprinkler heads by stock piles, or paint on the sprinkler heads are among the causes.

The sprinkler head contains a fusible plug which melts and releases the water when a predetermined temperature is reached. Valves control distribution of water to all parts of the system.

Various types of heads are available for use under a wide range of temperature conditions.

Wet-pipe systems are used where there is no danger of pipes freezing. Water is maintained under pressure right up to the sprinkler heads and operation is immediate.

Dry-pipe systems are used where there is danger of pipes freezing. Air under pressure instead of water, is

—To page 172

Fast Acting Fire Watchman



on duty 24 hours a day... AT EACH FIRE HAZARD POINT

Let C-O-TWO safeguard your property from fire, even if you have a night watchman on duty. With a C-O-TWO Combination Smoke Detecting and Fire Extinguishing System you have an automatic, round-the-clock fire watchman that simultaneously guards each fire hazard point. The first trace of smoke in a protected area is drawn through pipes to a smoke detector. Immediately an alarm sounds . . . then fast, clean carbon dioxide gas fully floods the stricken area . . . the fire is out before it has a chance to spread and cause extensive damage.

Actual fire tests made by the Underwriters' Laboratories, Inc. show that fire detection with this type of smoke detecting equipment is much quicker than other methods . . . because usually there is smoke or smoldering before flames break out.

There is no water damage, no lingering odors with carbon dioxide . . . only damage is that actually caused by the fire itself. Carbon dioxide is clean, dry, non-conducting and non-damaging . . . harmless to finishes, materials and equipment. The fire is out in seconds, with hardly any interruption or commotion.

Remember fire doesn't wait . . . let an expert C-O-TWO Fire Protection Engineer advise you on your fire protection needs now, before fire strikes. Write today for complete free information!



C-O-TWO FIRE EQUIPMENT COMPANY

NEWARK 1 • NEW JERSEY

Sales and Service in the Principal Cities of United States and Canada

AFFILIATED WITH PYRENE MANUFACTURING COMPANY



Demand
JUSTRITE
*Safety Approved
Products*



SAFETY FILLING CANS. Flexible metal pouring hose. 3 or 5 gallons.



SAFETY CANS. Seven sizes. One pint to 1 gallon with trigger handle, larger sizes with swing handle (shown). Labeled by Underwriters'.



Model 1610 EXTINGUISHER
Entirely new development in carbon tetrachloride extinguishers. Labeled by Underwriters'. Air pressure operated. Easily refilled.



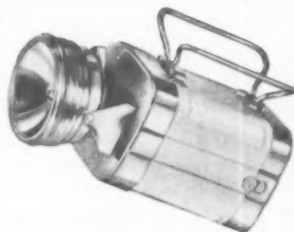
OILY WASTE CANS
Heavy gauge galvanized for safe handling of waste, rags and other flammable materials. Underwriters' labeled. Sizes, 6 to 25 gal.



NO. 1904-S HEADLIGHT. Adjustable elastic headband. Case easily slipped in pocket holds 4 standard flashlight cells.



NO. 1717-S FLASHLIGHT. Compact 3-cell design. Plastic case, metal reinforced, guaranteed. No. 1727-S FLASHLIGHT with flexible extension.



NO. 2188-S FLASHLIGHT. Eight standard flashlight batteries give 12-volt power. Or 6-volt lantern battery may be used for economy.



NO. 2144-S LANTERN. All purpose. Two bulbs for either spot or spread beam. Adjustable bail and stand. Uses 6-volt battery.



NO. 2146-S FLASHING. Up to 67 hours continuous flashing service. Red Fresnel glass globe. For 6-volt battery.

JUSTRITE
SAFETY
PRODUCTS

Available through leading industrial supply distributors everywhere.

JUSTRITE MANUFACTURING COMPANY
2061 No. Southport Ave., Chicago 14, Ill.

ALICO MODEL 5H-3
2½ GAL. WATER TYPE
FIRE EXTINGUISHER
*For Use With Clear Water
Or Anti-Freeze Solution*



Allico Anti-Freeze Crystals.

The Allico Water Type Fire Extinguisher is made of strong, durable Silicon Bronze. With its higher tensile strength, Silicon Bronze is a superior fire extinguisher material; and the resistance welding of all joints makes them even stronger than the metal itself. By the elimination of rivets and the banks of soft solder, about 4 pounds have been lopped off the weight. This strong, lightweight unit is attractively styled, too . . . the high luster of golden-hued Silicon Bronze enhances its appearance in any location.

CLEAR WATER TYPE

Where freezing temperatures do not occur, the Allico 5H-3 Fire Extinguisher is charged by filling with 2½ gallons of clear water. When the unit is inverted and bumped, carbon dioxide gas is released from a small cylinder inside, and the resulting pressure discharges 2½ gallons of liquid in a steady stream with a range of from 45 to 55 feet.

ANTI-FREEZE TYPE

The Allico 5H-3 Anti-Freeze Model is furnished with Allico Anti-Freeze Crystals. Added to the water volume specified on the label, they last indefinitely and will prevent freezing at -40°F. When ordering, specify Model 5H-3 Water Type, or Model 5H-3 Anti-Freeze Type.

Furnished with hanging bracket, screws, record tag, charge, and directions for operation and maintenance.

For Class A Fires Underwriters' Rating A1

TESTED TO 500 LBS.

*Panel Patent Pending



AMERICAN-LAFRANCE-FOAMITE
Corporation
ELMIRA-NEW YORK U.S.A.

With new unremovable labels in green color, an integral part of shell, more legible, more easily cleaned.



Automatic Protectors

(From page 168)

maintained in the pipes. Opening of a sprinkler head releases the air pressure, resulting in the operation of a valve admitting water to the system. There is a slight delay between the opening of the sprinkler head and the discharge of water.

After a fire, sprinkler heads should be replaced promptly.

Sprinkler supervision. Sprinkler systems include devices to give automatic alarms when the sprinklers operate. These devices detect:

1. Open or closed position of control valves.
2. Flow of water in sprinkler systems, indicating fire or leakage.
3. Water levels and temperatures in gravity and pressure tanks.
4. Air pressure in dry-pipe systems and pressure tanks.
5. Fire pump steam pressure.
6. Voltage of supply for electric fire pumps.

Special Systems

For special risks, automatic systems employing carbon dioxide, foam or water spray nozzles may be installed.

Carbon dioxide is particularly desirable where the system operates in an enclosed space and the value of the contents is high and subject to water damage. Carbon dioxide is discharged manually or by means of heat-actuated devices.

Devices are also provided for closing shutters, doors, windows and dampers and stopping blowers to confine the extinguishing gas. These systems are suitable for spaces containing electric equipment or flammable liquids.

Foam installations are suitable for tanks and operations involving flammable liquids but not for electric fire hazards. They are usually arranged to operate automatically with provision for manual operation.

Water spray systems are used to protect oil-filled electric equipment, such as transformers, oil switches and oil piping and open tanks of flammable liquids. To be effective, water spray systems require expert installation.

Static Electricity

Where flammable vapors are present, static sparks create a serious hazard and artificial humidification is frequently used. Humidification may be obtained by steam jets, unit humidifiers or air conditioning systems. Unless the humidity is automatically controlled, it should be checked periodically with a hygrometer. Relative humidity must be at least 50 per cent to be effective.

Fires from static electricity are more frequent in cold weather.

In summer when the relative humidity is 50 per cent or higher, there is a thin film of moisture on most objects. This conducts static electricity to ground as fast as it is generated.

In the winter, when buildings are heated, the indoor humidity is considerably lower. This results in the accumulation of static electricity in processes where there is contact and separation of dissimilar substances. An example is when paper or cloth passes through a machine.

Methods for the control of static electricity may be used independently or with a humidification system. One method is to use brushes with grounded brass, bronze or copper bristles as static collectors. These are located close to points where the cloth or paper leaves the rolls or passes over guide bars.

Ionization of the air is also used where static is a problem. Ionized air contains electrically charged particles which conduct static charges to grounded parts of the machine. Methods of ionization include gas flames, discharges of high potential electric currents, and radiation from radioactive material. These methods need expert installation and maintenance.

Get your exits



ready for increased traffic



Call in your



● Increased production for your plant means more employees, more traffic, more need than ever for safe, dependable exits. Call in your Von Duprin "Exit Engineer" now for a free survey of your exit requirements. From actual experience, he can recommend the right Von Duprin exit devices to give you the greatest safety and service. Von Duprin is the most complete line of approved exit devices. From this one line, you can meet *all* your present and potential exit hardware needs. If you don't know the name of your nearest "Exit Engineer," write Von Duprin.

Free! Reserve a showing of Von Duprin's 20-minute sound movie, "Safe Exit." Build a lively safety program around this interesting public service film. Write for a booking.

VONNEGUT HARDWARE CO. • VON DUPRIN DIVISION • INDIANAPOLIS



Von Duprin Fire and Panic
EXIT DEVICES

THE SAFE WAY OUT!



This Firefighter can be two places at once!

You can protect several danger spots at one time with a Kidde built-in carbon dioxide fire extinguishing system. ¶ Widely separated fire hazards...even on different floors can be protected by a single Kidde system. If fire strikes a protected space, directional valves rush fire-smothering carbon dioxide gas to the stricken area. The same CO₂ can set off mechanisms to shut doors and windows...turn off fans and machinery. After doing its job, the clean, dry CO₂ evaporates completely. ¶ Whatever your fire detection and protection problem may be, a Kidde expert will be glad to help. When you think of CO₂ call Kidde.

Walter Kidde & Company, Inc., 345 Main St., Belleville 9, N. J.
In Canada: Walter Kidde & Company of Canada, Ltd., Montreal, P. Q.

Kidde

"Akbar" Doors Automatically Block Flames—with Safety—at Hazardous Openings



"Akbar," The Steel Rolling Fire Doors made only by Kinnear, stop fire by cutting off flame-spreading drafts

Kinnear's famous AKBAR Steel Rolling Fire Doors give you *quick, positive, automatic* protection. When fire threatens, they stop dangerous flame-spreading drafts, by blocking openings with a curtain of steel.

Yet their automatic action features special provisions for the safety of building occupants. In emergency release, they are pushed down by a strong starting spring, to assure positive action. Their downward speed is controlled as a safety measure for anyone passing underneath as the doors are released.

Another device stops the door positively at floor level—with the steel door curtain covering the entire opening. The door won't sag, or

drop through a fire-weakened sill. In addition, the doors may be opened after automatic closure, for emergency exits.

When not in use, Akbar Doors remain coiled overhead, out of the way. Approved and labeled by Underwriters' Laboratories, Inc., they have saved as much as *one third of their cost per year*, in reduced insurance rates. They are built to fit horizontal openings of any size. Write today for complete information.

Akbar Doors can be equipped for daily service use, with motor operation if desired. However, the regular Kinnear Steel Rolling Doors (non-labeled) are designed for service use where maximum fire protection is not required.



The KINNEAR Manufacturing Co.

FACTORIES:
1720-40 Fields Ave., Columbus 16, Ohio
1742 Yosemite Avenue, San Francisco 24, Calif.
Offices and Agents in All Principal Cities

Defense Against Fire

(From page 165)

should be planned so that each man will have a definite task. Some should be assigned to protecting goods and machines from water damage.

Private fire departments. Some plants which are large and cover a great deal of ground have uniformed full-time fire departments with motorized equipment. The department supervises the whole plant protection program and is trained in specialized techniques of fire fighting.

Any program of fire protection should be effective around the clock, not the main day shift alone.

Watch service. Watchmen are vital to the protection of industrial property. They discover and correct fire hazards, detect the outbreak of fire or water damage, extinguish incipient fires, and call help promptly when needed.

The watchman should be a mature, able-bodied man who is loyal and dependable. During periods when the regular working force is absent the safety of the plant depends to a large extent upon him.

The watchman should be familiar with all parts of the fire protection system, including sprinkler systems, valves, drains and fire pumps. He should know how to operate extinguishers.

Recorded hourly rounds for watchmen are recommended for most plants. Approved watch clock or supervisory systems give a record of his call at each station.

Fire prevention engineering. Conditions responsible for starting fires and causing them to spread rapidly are avoided by fire resistant construction, isolation of hazards, good house-keeping and proper storage for combustible materials.

The first step in the control of fire hazards is recognition that they exist. The services of a qualified fire prevention engineer will be helpful in planning measures for both prevention and protection.

Extinguishing Methods

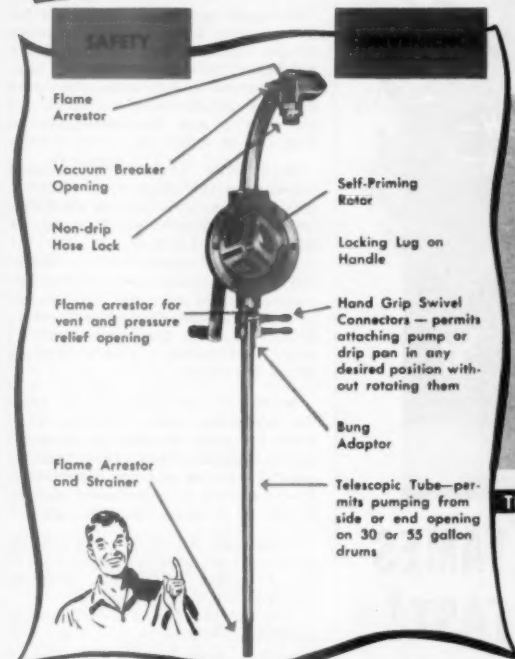
There are many types of apparatus designed for a variety of risks, but all extinguishers are based on one of two fundamental methods of quenching fires: (1) Bringing the temperature of burning material below the kindling point; (2) Depriving burning material of oxygen which supports combustion.

Water Supplies. Water is the most widely used and effective extinguishing medium for most types of fires—important exceptions being those with electrical equipment, flammable liquids, and in materials where water damage would be excessive.

In determining supply requirements, structural conditions and processes

NEW Protectoseal**FIRE PROTECTIVE TRANSFER PUMP**

LISTED BY UNDERWRITERS LABORATORIES — PATENT APPLIED FOR



A pump designed for safety from the bottom of the suction tube to the tip of the discharge nozzle. Flame arrestors at all points necessary to prevent explosion of vapors inside of the drum. Pressure and vacuum relief thru protected openings.

A self-priming pump with a practical pumping speed — 5 gallons per minute. Fast enough for filling small containers — slow enough to prevent sudden overflows.

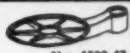
Easily attached by turning hand grip swivel connectors. Tightens in any desired position without rotating pump.

No. 4300—Pump Assembly. Includes pump, spout with threaded hose connection, bung adaptor, telescoping suction tube with inlet strainer and flame arrestor.

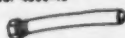
THESE FEATURES OPTIONAL

SIX-FOOT HOSE No. 4500-45

Requires use of vacuum breaker shown below.



DRIP RETURN PAN



VACUUM BREAKER & OVERFLOW CUP

SHORT NOZZLE

No. 4500-46

**Protectoseal Automatic Flame Arrestor Faucets**

Use Protectoseal fire-safe faucets when drawing flammable liquids from drums. Flame arrestor inside spout guards against flash backs. Self-closing handle prevents leaving faucet open. Valve seat located away from wrench-bearing surface to prevent distortion and leakage when installing.



New swivel type faucet (Cat. No. 506) screwed into drum like any ordinary faucet; then the outlet end easily pivoted to drain position.

Protectoseal Self-Closing Cover for 5-Gallon Pails

Make safety containers for cleaning and paint stripping operations out of your 5-gal. used pails. Fire in or around pail automatically drops fusible link cover to snuff out blaze.

**Protectoseal Laboratory Disposal Can**

Provide for safe disposal of flammable or corrosive liquids in the chemical laboratory. Large fire-baffled opening for easy emptying of toxic materials at arm's length to avoid fumes. Available in 2 and 5-gal. size.



SAFETY CAN



SUPPLY CAN



OILY WASTE CAN



PLUNGER CAN



BENCH CAN



LAB. BENCH CAN



FIRE EXT. PARTS WASHER



VENT

Since 1922 Pioneering Fire Prevention Devices for Industry

THE PROTECTOSEAL CO.

1928 S. Western Avenue

Chicago 8, Illinois

FREE: Analyze hidden hazards on your property with "Self-Checking Chart" and booklet of FIRE Facts, or request an inspection by Protectoseal engineers. No obligation.





NEW Aer-O-Foamster TAMES SMALL FIRES FAST!



GIVES SAME KIND OF PROTECTION AS LARGE OIL REFINERIES GET

Here's the new way to guard against small flammable liquid fires: keep a National Aer-O-Foamster on hand!

This new unit delivers a large quantity of foam to smother small fires quickly . . . gives the same kind of protection as large foam installations.

The Foamster is ideal for gasoline stations, bulk plants, refineries, chemical plants, loading rack installations . . . any place where mobility of fire protection equipment is important. It can be furnished for storage in below-freezing temperatures, ready for instant use.

Depending on the pressure and type of foam liquid used, the Foamster delivers up to 540 gallons of foam . . . has a range of up to 50 feet. It produces as much foam as a 40-gallon engine . . . but costs far less.

ANOTHER NEW PRODUCT BY NATIONAL FOAM
—pioneers in the manufacture of foam and foam equipment

For further information, see your nearest National Foam distributor, or write to the address below

1 EASY TO CARRY
Has coil aluminum grip, is less than 3 feet high, weighs only 70 pounds with charge.

2 EASY TO USE
Has simple locking device for quick change-over to new charge. Delivers water or foam, without shutdown.

3 ECONOMICAL TOO
Has a 1 1/2" booster hose for extra equipment needed. No yearly recharging necessary.

NATIONAL FOAM SYSTEM, INC.

Headquarters for Foam Fire Protection
WEST CHESTER, PENNA.



must be considered and the number of fire streams that might be required to cope with a blaze.

Pumping equipment in connection with plant water supply systems should be sufficient to supply the number of streams required at adequate pressure. Allowance should be made for pumps being out of service for repairs and for continuity of pumping in event of power failure.

Hydrants should be located throughout the plant area so as to give adequate coverage of all buildings, and preferably not less than 50 feet from any building.

Systematic maintenance is essential. When hydrants are installed, attention should be given to drainage to minimize the danger of freezing in cold weather. Hydrants should be kept clear of snow and a thawing device provided.

Standpipe and hose provide effective protection inside buildings when used by men trained in handling heavy streams. They are a valuable auxiliary to the city fire department. Piping should be of sufficient size for buildings of more than four stories.

Couplings. All outside hydrant nipples and hose couplings should be of the American (National) Standard 2 1/2-inch fire hose thread.

For outside use, 2 1/2-inch single-jacketed rubber-lined hose is ordinarily used. It is flexible and light in weight. Double jacket hose is used principally for the rougher service in municipal fire departments.

Rubber covered hose is sometimes needed where there is exposure to fumes or corrosive liquids. Synthetic rubber has been found superior to the natural variety for fire hose.

The use of 1 1/2-inch hose is increasing and it is of great value for small fires and for wetting down fires after the blaze is under control. It can be handled easily by one or two men.

Playpipes and nozzles. Standard underwriters' playpipes are commonly used. They throw an effective stream but are difficult to handle, particularly on ladders. The short rigid playpipes with strap and ladder hook are more suitable for plant use with shut-off nozzles to prevent excessive water damage.

Adjustable spray and straight stream nozzles (for both 2 1/2- and 1 1/2-inch hose) give water curtain protection for firemen and blanketing effect. They also provide solid streams for penetration.

Water spray (fog) nozzles are of value for oil fires. Water fog, owing to its low conductivity, can be used safely on electrical fires. High pressure water fog has even greater absorption. Its effective range is limited to a few feet but this can be offset to some extent by using applicator pipes of varying lengths.

Foam-generating equipment is desirable where large quantities of oil, gasoline and other flammable liquids are stored. In the larger plant, permanent generating equipment should be installed.

Liquid foam with portable equipment is valuable for extinguishing fires in smaller quantities of flammable liquids. It can be brought into action quickly.

Limiting Fire Areas

Fire Doors and Shutters. For large buildings, fire-resistive partitions with fire doors are important in confining fire to a limited area. Several types of doors with varying degrees of resistance have been approved by testing laboratories.

Fire doors should either close automatically each time they are opened or be closed by a heat-actuated device if fire should break out. The most common device is the fusible link.

The releasing device should be located where it will be affected quickly by heat passing through the doorway and it should be protected against mechanical injury.

Where flash fires may occur, quick operating devices are preferable, except for doors used as exits.

Fire shutters are used for windows where there is an exposure hazard from adjacent buildings. Shutters may be of the swing type (tin clad or steel) or rolling steel. The latter type can be installed where space is too limited for swinging shutters.

Sliding shutters are not recommended where snow and ice might interfere with their operation.

First-Aid Extinguisher

(From page 166)

Approval. Approved extinguishers carry the label of Underwriters' Laboratories and/or Factory Mutual Laboratories. Such extinguishers bear an instruction plate giving directions for inspecting and recharging, also the type of fire (Class A, B or C) for which the equipment is recommended, and its unit rating.

Only approved extinguishers should be purchased. One essential is adequate capacity. A vaporizing liquid extinguisher must contain not less than one quart of the extinguishing agent to meet recognized standards.

Placement. An extinguisher may be useless if an employee must spend valuable minutes looking for it, or if it is blocked by piles of materials. Here are six recommended rules:

1. Locate extinguishers close to likely fire hazards but not so close that they will be in the fire zone should fire occur.
2. Place extinguishers so access to them will not be blocked by fire.
3. Install enough extinguishers to deal with the severity of the blaze which may be expected, the rapidity with which it might spread, intensity of heat, etc.

We don't have to 'teach' our people how to use this extinguisher!



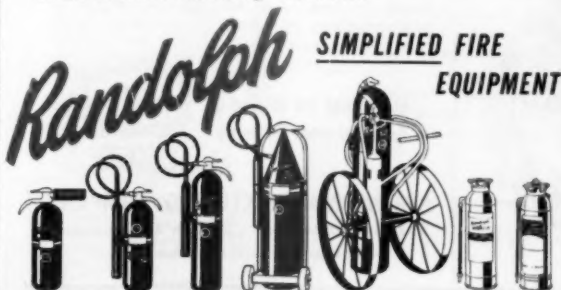
IT'S A
RANDOLPH!

One glance tells you just how the Randolph operates—no instructions, no explanations necessary! That's why anybody can get a Randolph into action fast! No valves to turn, no nozzles to adjust; just point and press your thumb and Randolph's cloud of snowy CO₂ kills fire instantly!

Non-damaging Randolph CO₂ evaporates without a trace, is non-toxic, won't conduct electricity, deteriorate or freeze. And all Randolph Models are Underwriters' Approved.

A COMPLETE LINE OF EXTINGUISHERS AND AUTOMATIC SYSTEMS

Learn how Randolph gives your plant panic-proof, split-second protection against flammable liquid, electrical and other hard-to-handle fires! Write Randolph Laboratories, Inc., 2 E. Kinzie St., Chicago 11, Illinois.



HERE'S WHAT YOUR

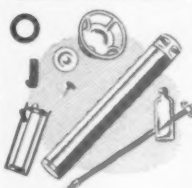
Pyrene

SERVICE DEPOT

WILL DO FOR YOU



IMMEDIATE EXCHANGE
of repairable 1 and 1½ qt. Pyrene Vaporizing Liquid Extinguishers for factory-rebuilt models in perfect condition.



COMMON REPLACEMENT PARTS
for foam, soda-acid, cartridge-operated, and other Pyrene Extinguishers.



TRADE-INS
of old or damaged extinguishers of any make. (Underwriters' Laboratories approved) for brand-new Pyrenes!



RECHARGES
for all types of Pyrene Fire Extinguishers.



Instant extinguisher service at Pyrene Service Depots!

Get parts and replacement extinguishers immediately. No waiting!

Millions of Pyrene* Fire Extinguishers have totaled many millions of years of service. Eventually all extinguishers become old, worn or damaged. When an extinguisher needs to be repaired, you don't want to be without protection while you wait for service from the factory.

Now 180 Pyrene Service Depots, located in leading cities, eliminate such dangerous delays. They'll immediately exchange your repairable 1 and 1½ qt. Pyrene Vaporizing Liquid Extinguishers for factory-rebuilt. They'll trade in non-repairable ones of any U.L.-approved make on new Pyrenes. And they'll supply common replacement parts and recharges for all types of 2½ gal. Pyrene Extinguishers.

Pyrene makes a complete line of extinguishers for every hazard—from hand-operated models to large automatic systems. Write for addresses of your local distributor and service depot.

*T.M. Reg. U.S. Pat. Off.

At this sign you will find a
Pyrene for every fire hazard



PYRENE MANUFACTURING COMPANY

583 Belmont Avenue Newark 8, New Jersey

Affiliated with C-O-Two Fire Equipment Co.

4. Mark locations conspicuously.
5. Identify each unit for the type of fire it is designed to combat.
6. Protect extinguishers from traffic.

Recharging. Use of commercial carbon tetrachloride for vaporizing liquid extinguishers generally results in deterioration of the shell and interior mechanism. The vaporizing liquid furnished by manufacturers is treated to remove impurities and to depress the freezing point.

Before recharging soda acid and foam extinguishers, the shells and all parts should be thoroughly rinsed with warm water.

Protection from Freezing. Carbon dioxide, vaporizing liquid and dry chemical extinguishers will not freeze.

Soda-acid and foam extinguishers should be installed in heated cabinets.

Gas cartridge extinguishers, pump tanks and fire pails use calcium chloride solutions.

REFERENCES Plant Protection

- National Safety Council:**
Dust Explosions—Safe Practices Pamphlet 104.
Extinguishers When You Need Them, by Norman H. Davis—National Safety News, June 1949, p. 22.
Fire Exits, Drills and Alarms—SPP 19.
Fire Extinguishment—SPP 24.
Fire Causes and Prevention—SPP 31.
Fire Brigades—SPP 36.
Men Against Fire (Fire Brigades), by Warren Y. Kimball—National Safety News, Oct. 1950, p. 84.
Fire Retardant Treatment for Fabrics—Data Sheet D-72.
Fire Retardant Treatment for Wood—D-Gen. 20.
New Methods in Industrial Fire Control, by Allen L. Cobb—National Safety News, June 1950, p. 21.
Dry Chemical Extinguishers, by Wm. F. O'Connor—National Safety News, Sept. 1950, p. 26.
Wakeful Watchmen, by Paul E. Hubby—National Safety News, Feb. 1951, p. 28.
Static Electricity—SPP 32.
Static Electricity, Its Elimination by Bonding and Grounding, by G. M. Kintz—National Safety News, Feb. 1951, p. 24.
Lightning—Safety Reprint Gen. 6.
National Board of Fire Underwriters:
Building Code (1949).
Carbon Dioxide Fire Extinguishing Systems and Inert Gas for Fire and Explosion Prevention. (Pamphlet No. 12.)
Central Station Protective Signaling Systems (Pamphlet No. 71).
National Electrical Code (1947).
Standpipe and Hose Systems (Pamphlet 14).
Water Spray Systems for Fire Protection (Pamphlet 15).
Proprietary and Local Systems for Watchmen, Fire Alarm and Supervisory Service (Pamphlet 72).
Suggestions for Organizing, Drilling and Equipment of Private Fire Brigades (Pamphlet 27).
Standards for Installation of Sprinkler Equipment (Pamphlet 13).
National Fire Protection Assn.
National Fire Codes:
Vol. I—Flammable Liquids, Gases, Chemicals and Explosives (1948).
Vol. II—Prevention of Dust Explosions (1946).
Vol. IV—Extinguishing and Alarm Equipment (1946).
Vol. V—National Electrical Code (1947).
Industrial Fire Brigades Training Manual, Handbook of Fire Protection—Crosby-Fiske-Forster (1948).

Cleaning up Fire Hazards

KEEPING a plant clean and orderly is a basic fire prevention measure. Accumulations of combustible waste provide fuel for fire whenever there is a source of ignition present. Some materials heat and ignite spontaneously.

Housekeeping goes far beyond surface neatness. It includes safe storage arrangements, exhaust ventilation for removal of dusts, gases and vapors, avoiding dripping of flammable liquids and accumulation of combustible residues, and similar measures.

Good housekeeping insures easy access to all parts of the plant, both for normal traffic and for the emergencies of fire fighting.

Waste disposal. Fire breeding conditions can be avoided by regular removal of waste and rubbish. The most dangerous accumulations are out of sight—in out of the way corners, under stairways, and in machine and elevator pits.

Dusts, such as lint, flour, starch, etc., should not be allowed to accumulate on machines, walls, beams and fixtures. All organic dusts and many metallic dusts are explosive when suspended in air in the right proportions.

Combustible residues in spray booths, exhaust ducts and under hoods create serious hazards.

Excelsior, shavings, saw dust and paper trimmings should not be allowed to accumulate.

Approved covered metal cans in which waste can be deposited are needed if rubbish is to be kept off the floor. Cans should be emptied daily and the contents hauled away or burned in a safe incinerator.

Spontaneous ignition. Oils, paints, varnishes and lacquers, with their thinners and solvents, and other flammable liquids require special care because of the risk of spontaneous ignition when they are absorbed in rags, waste, burlap and clothing. Animal and vegetable oils, especially drying oils used in paints, are particularly hazardous.

Storage. A good rule is to limit supplies of all combustible materials in any building.

Where quantities of oil, gasoline and other flammable products are not large enough to require large storage tanks, an oil house for storage of these materials in barrels, drums or other suitable containers is recommended.

The oil house should be located some distance from other buildings so the plant will not be endangered should fire break out.

Floors should be non-combustible; concrete is frequently used. Explosion-proof electrical fittings should be used in this area.



A small trash fire started this disastrous fire at the Iron Fireman Manufacturing plant in Portland, Oregon, on February 2, 1944. Loss between \$2,500,000 and \$3,000,000.



Underwriters' Laboratories Approved
STAINLESS STEEL EXTINGUISHERS
Portable Foam, Soda-Acid and
Clear Water Cartridge Type in
2½ gal. sizes.



STAINLESS STEEL FIRE EXTINGUISHERS

Disastrous industrial fires originating from wood, paper, cloth, trash, etc., can be stopped when they start by quick action with Buffalo Stainless Steel Extinguishers. And "quick action" is easy when Buffalo Stainless Steel Extinguishers are close by. They are easier to handle because their stainless steel construction makes them one-third lighter than old style extinguishers.

Order Buffalo fire protection today! Consult your Classified Telephone Directory or write for your nearest Buffalo representative.

BUFFALO FIRE APPLIANCE CORPORATION
DAYTON 1, OHIO



This Yawn Cost a million dollars

"It's certainly a dark and quiet night," said the unsupervised Watchman of a rubber factory. He yawned, closed his eyes—and dozed off.

Thirty minutes later he was engulfed in a flaming inferno and barely escaped with his life. The Underwriters reported "Watchman failure".

Unless your Watchman is supervised by a DETEX GUARDSMAN Watchclock, you may wake up some morning to find your own plant a smoking shambles. Because report after report proves that a watchman who is not subjected to dependable supervision is prone to sleep—and often shirks and skips rounds.

The GUARDSMAN provides an alter-proof record on continuous roll tape of your Watchman's activities—especially on those long, dull weekends when nobody is around. If you have a sensible regard for your plant and property, you will investigate the GUARDSMAN without delay.

Your choice is peace of mind—or possible disaster. Which do you want? Send for folder today.



DETEX

**PATROL
ALERT
ECO
NEWMAN**
WATCHMENS CLOCKS
DETEX WATCHCLOCK CORPORATION
Dept. N-3
78 VARICK STREET NEW YORK 13, N. Y.
GUARDSMAN Sales and Service in All Principal Cities

Congestion helps the spread of fire and hampers fire fighting. Equipment should be well arranged, stock piled neatly and securely, and ample aisle space provided.

Stock piles should not be high enough to interfere with operation of sprinkler heads and stock or equipment should not block fire extinguishers, sprinkler valves, or fire doors.

Smoking. Many plants have removed restrictions on smoking while at work in non-hazardous areas. Where the hazard exists, certain areas have been set aside for smoking and the no-smoking rule rigidly enforced elsewhere. Safe containers for matches and butts should be provided.

Safety Cans

Safety cans with self-closing spouts are desirable for any liquid that will burn and mandatory for those in Class 1.

Red is the prescribed color for containers, which should be plainly marked to identify the contents.

Safety cans of more than one gallon capacity, where used for solvents or thinners, should have a flash-arresting screen at the spout and fill connections. These screens prevent external flame from igniting vapors in the can when the liquid is being poured.

Flash-arresting screens are also used in vent pipes, storage tanks and drums from which flammable liquids are dispensed.

Flameproofed Fabrics

In some cities and states, textile fabrics used in places of public assembly must be flameproofed. The flameproofing process also increases resistance to weather and mildew.

Textiles may be purchased already treated or customers may send their own fabrics to processors for flameproofing.

Flameproofing materials are available in proprietary compounds or under their chemical names. Ingredients include ammonium sulphate or phosphate, ammonium chloride, borax and boric acid. They are usually applied to the fabric in saturated solution.

Metal Fires

No ordinary extinguisher is suited for fires in magnesium, powdered aluminum, zinc, sodium, or potassium. For such fires a special G-1 extinguishing powder has been developed. This is available in 40-pound pails and 325-pound drums. It is usually applied in a layer at least 1½ inches deep.

Where large amounts are needed, a wheeled applicator holding 600 pounds of powder can be used. The powder is discharged by an electric impeller through a hose and nozzle.

"Fire - Chief" Finished WELDING CURTAINS

to confine the welding operation to a given area

SALVAGE COVERS

Used to protect machinery, and other equipment from water, dust and snow.



FLAMEPROOF CANVAS

impregnated with Hooper's Fire Chief treatment under their patent which carries the Underwriters' Laboratory seal.

A. Smith & Son Inc.

Established Eighteen Hundred Sixty-Seven

MANUFACTURERS OF REEVES STRETCHER

1237-39 Ridge Ave.

Philadelphia 23

"If It's Made of Canvas, We Make It"

Medical and Health Service

The Medical Department

THE PHYSICIAN and the safety director share the responsibility for protecting the worker against the risks of injury on the job and occupational diseases.

Care of the injured worker was the first responsibility assigned to industrial medicine. Its importance in that field is universally recognized but its activities have expanded enormously.

Conservation of manpower is aided by (1) Proper placement of employees through pre-employment examinations; (2) Continued supervision of employee health through periodic check-ups, particularly in health-hazardous occupation; (3) Supervision of plant processes.

Introduction of new processes and new materials with actual or potential health hazards has brought new problems and opportunities to the medical department. To study and control health hazards, some large corporations maintain industrial hygiene laboratories. Smaller companies obtain help from insurance carriers, state departments, and private consultants.

Scope of the Program

Industrial medical service requires a definitely organized plan, set up by a physician with management's full support. Essentials of such a program are:

1. A staff of qualified physicians, nurses and attendants adequate for the needs of the organization.
2. Dispensary and hospital facilities conforming to standards established by the American Medical Association, American College of Surgeons and the American Association of Industrial Physicians and Surgeons.
3. Efficient care of occupational injuries and diseases.
4. Reasonable first-aid treatment for non-occupational injuries and illnesses while on the job.
5. Physical examinations—pre-employment and periodic.
6. Adequate records of treatments and individual medical histories. The latter should be kept confidential.
7. Supervision of plant sanitation and hygiene measures.
8. Instruction of employees in personal health and safety.

Hospitals. Use of approved public hospitals, where available, is usually

more desirable than setting up elaborate facilities for surgery and treatment of serious cases. During World War II hospital facilities in many communities were overtaxed and this led to the expansion of many plant hospitals.

The medical director. Health and medical services should be under the supervision of a physician. Management and the medical director can formulate workable policies. Medical assistants, consultants, nurses, and others, should be selected on the recommendations of the medical director.

Full-time service of a physician may be warranted by the size of the plant or the nature of its operations. Sometimes a plant physician engages in private practice with the company's approval. He may devote part of his time to the industrial organization, assuming supervisory responsibility and delegating detail work to qualified assistants.

For Smaller Plants

Part-time service. For a plant not large enough to warrant a full-time medical director, a part-time arrangement may be the solution. A physician who is present only part of the day should have definite hours at the plant.

With such an arrangement it is desirable to have a full-time nurse in attendance so that treatment will be carried out and complete records kept. The nurse is responsible to the physician and works under his direction.

Some plants employ medical service on a call basis, the doctor being summoned only in emergencies. This is the least satisfactory type of service. Under such a setup, the physician is not likely to develop a real interest in the company, nor will he be able to do effective educational work.

IN THIS SECTION

The Medical Department	181
Treatment of Injuries	182
Resuscitation	183
References	183
Skin Hygiene	187
Hot Weather Health	190



Physical examinations aid in proper placement of employees, control of occupational health hazards. (Chrysler Corp.)

Cooperative services. Where several small plants are close together, a cooperative medical service program can often be carried on successfully. A central dispensary with the necessary personnel and equipment is maintained. Adequate service can be made available at moderate cost.

Physical Examinations

Pre-employment examinations have become standard procedure in many companies. Their purpose is to place each employee in a job suited to his capacity rather than to bar any one from a job. Periodic check-ups are desirable, particularly for elderly employees, those in jobs where safety depends on physical fitness, and where there is exposure to health-hazardous materials.

Examinations include vision, heart, chest, blood pressure, hearing and urinalysis. Some tests require rather elaborate laboratory facilities.

Laboratories. For most industries, facilities for taking urine tests and blood counts are needed. Blood serum samples can be sent to a local or state laboratory for analysis. Where a large volume of toxicological tests is conducted, a complete laboratory at the plant may be desirable.

Vision. Several devices for testing visual acuity and classifying workers for jobs are available. This apparatus can be used by trained laymen. Those

—To page 191

Treatment of Injuries

PRELIMINARY treatment of injuries and sudden illnesses that occur on the job can prevent minor cases from becoming serious and avoid a great deal of lost time.

Wherever possible, treatment should be administered by a physician or nurse. Companies with extensive first-aid training programs will not permit a layman to give treatment if a doctor or nurse is available. The training is strictly for emergency use.

However, most injury cases, both in the plant and outside, are handled by laymen. Many a life has been saved because some person knew how to check bleeding, apply resuscitation, treat shock, or splint a fracture.

Two world wars have extended the training of laymen in first-aid techniques and proved the value of such training. Many men have received excellent training in the Army and the Navy. Many others have been trained by the American Red Cross and the U. S. Bureau of Mines.

Adequate treatment of injuries requires:

1. Competent attendants
2. Clean, convenient quarters
3. Medically approved equipment and supplies
4. Proper organization
5. Well-kept records

This section is concerned with the needs of plants which employ a full-time nurse and a part-time physician rather than those with medical staffs and hospital facilities.

Personnel. First-aid facilities should be under the supervision of at least a part-time physician. A full-time registered nurse is desirable, even in a medium-sized plant.

If a full-time nurse is not practicable, at least two employees who have completed standard first-aid courses should be selected to carry on the work. They should be under the supervision of a doctor or a nurse.

Attendants should be allowed sufficient time from their jobs to keep the first-aid room in order, check supplies, and keep the necessary records. One attendant should be available during all working hours.

Dispensaries

A separate room should be provided, if possible. Patients should have reasonable privacy. If it is not practicable to partition the dispensary into a waiting room and a treatment room, a screen can be used.

The utmost cleanliness of equipment and surroundings should be maintained. The color scheme has an important psychological effect on patients. For walls and ceilings, light tints in washable semi-gloss enamel are practical and cheerful. White is no longer considered necessary for hospitals and dispensaries.

The first-aid room should have:

1. Good lighting
2. Adequate ventilation and comfortable temperature
3. Basin with hot and cold running water
4. A quiet location
5. Floors of durable and easily cleaned material
6. Toilet facilities

Equipment. For a dispensary with a registered nurse in charge under the supervision of a part-time physician, equipment might include:

1. Two white enameled chairs and a bench
2. Enameled top table or desk
3. Stool
4. One or more beds or cots
5. Linen and blankets
6. Waste can with cover
7. File for medical records
8. Floor lamp
9. Treatment table and instrument cabinet
10. Medicine chest
11. Small sterilizer

12. Small items of office and surgical equipment, such as basins, pitchers, rubber gloves (sterile), scissors, tweezers, forceps, hot water bottle, ice bag
13. Stretcher
14. Telephone

Supplies. Any list should be regarded as a guide. The supervising physician should be consulted, particularly when any medication is involved, such as first-aid antiseptics and burn dressings.

It should be remembered that the supplies and instruments are likely to be used by laymen and the whole set-up should be as simple as possible.

Individual package dressings, kept in sterile wrappers until used, and first-aid antiseptics in ampoules are preferable when supplies are not used in large quantities and where laymen handle the cases.

Suggested items are:

1. Absorbent cotton, preferably in covered dispenser
2. Gauze bandages
3. Finger compresses
4. Dressings for burns
5. First-aid antiseptic
6. Roll of 1-inch adhesive tape
7. Safety pins—assorted sizes
8. Applicators
9. Teaspoon
10. Paper drinking cups
11. Medicine droppers
12. Aspirin or other analgesic
13. Boric acid—4 per cent solution
14. Bicarbonate of soda
15. White wine vinegar
16. Aromatic spirits of ammonia
17. White petroleum jelly
18. Scissors
19. Paper or individual cloth towels
20. Tissues
21. Liquid soap in dispenser
22. Tourniquet

Dispensary records. Accurate records should be kept of all treatments. If injuries are infrequent, a small day book may be sufficient, if kept systematically. Entries should include these details:

1. Date and time of injury.
2. Date and time injury was reported for treatment.
3. Name of injured.
4. Address of injured.
5. Where and how injury was received.
6. Names, addresses and telephone numbers of witnesses.
7. Nature of injury.
8. Kind of treatment given, and by whom.
9. Whether employee returned to work after treatment; if not, when.

First-Aid Kits

A kit located in a convenient corner of the plant is permissible only for a small plant. With a competent and conscientious employee in charge, it can be helpful. An unsupervised



A section of the medical department of A. B. Dick Company. Facilities include examining room, nurses' and doctors' offices, two-bed ward and X-ray room.

kit, however, is of doubtful value. Employees help themselves, often for home use, and soil materials they do not use. Labels fall off, leaving contents of packages unidentified. Some supplies deteriorate with age.

Self treatment should be discouraged. A trained and responsible person should be in charge. Locking the kit is not a desirable precaution. The key may be lost or the person who has it may be away in an emergency.

An ideal location may not be available but the best possible spot should be chosen. It should be readily accessible to the working zone. More than one kit may be desirable.

Following are essential for a location:

1. Lavatory with hot and cold running water
2. Toilet facilities
3. Convenience for supervision and maintenance
4. Reasonable privacy for the patient

Supplies may be selected from those suggested for dispensaries, bearing in mind the limitations of space and the requirements of the plant.

Essential items of equipment are:

1. Desk or table for filling out records and reports
2. Chair or stool
3. Filing case for records
4. Waste can with cover
5. Bulletin board

A first-aid manual should be kept on hand so the first aider can refresh his memory on details and check procedure.

First Aid for Isolated Groups

Where men must work at some distance from medical help, the services of the first aider become increasingly important. Laymen must assume greater responsibilities for the care of the injured than in the factory. Miners, oil field workers, construction gangs, lumbermen, truck drivers, and train and boat crews come under this classification.

In such operations as many men as possible should be trained in advanced first aid. In the mineral industries thousands of men have been trained by instructors of the U. S. Bureau of Mines. Equipment should be chosen with regard to the hazards likely to be encountered.

An emergency kit to be carried on the person should contain:

1. Sterile gauze in individual dressings.
2. Two 1-inch and two 2-inch roller bandages.
3. Sterile compress bandages in individual packages.
4. One triangular bandage.
5. Tourniquet.
6. Safety pins.
7. Aromatic spirits of ammonia—3 ampules.
8. Dressings for burns.

If the kit is carried on a car or truck, splints should be added.

Snake-bite kits should be included in the equipment carried in snake-infested country.

Transporting the Injured

Where there is any doubt about moving the patient, medical aid should be brought to the scene of the accident, if at all possible. Lifting a patient into a car may aggravate injuries.

Before the patient is moved he should be treated for possible shock. Fractures should always be splinted.

Stretchers. The army type is easy to handle. It can be used as a cot at the scene of the accident, in transit, and at the first-aid room or hospital.

Collapsible stretchers may be folded when not in use and carried in an automobile.

Bandages, splints and stretchers may be improvised in emergencies when regular equipment is not available. Improvisation is part of first-aid training. Where men are at work, however, approved first-aid equipment and supplies should be kept on hand.

Resuscitation Methods And Equipment

PROMPT application of artificial respiration by persons trained in first aid has saved thousands of lives in cases of suspended breathing due to asphyxiation, drowning, electric shock and other causes.

The Schafer prone pressure method is the most widely used. It is easily learned and can be applied immediately, which is important in all cases of suspended breathing.

Mechanical resuscitators accepted by the American Medical Association are used by fire departments, hospitals and by some industries where asphyxiation or electric shock hazards are serious and where apparatus and trained personnel are immediately available. Such apparatus can be used where injuries to the patient might prevent use of manual resuscitation.

Mechanical resuscitators are for use only by persons trained in their operation.

The inhalator, which supplies a mixture of oxygen and carbon dioxide to the patient, is used with manual resuscitation. It is particularly valuable in cases of gas asphyxiation. The inhalator, by itself, does not produce respiration and should not be confused with mechanical resuscitators.

Some types of apparatus combine the functions of resuscitator, inhalator and aspirator, restoring breathing, administering oxygen-carbon dioxide, and removing from the throat secretions which might hinder breathing.

The "Eve" or rocking method uses a stretcher over a support on which the patient is see-sawed up and down.

This method is used by the British Navy and the U. S. Coast Guard. A folding stretcher and support can be carried in an automobile.

Application of manual resuscitation should never be delayed while waiting for apparatus.

REFERENCES

Industrial Medicine and Occupational Hygiene

Books:

Principles and Practice of Industrial Medicine. Edited by Fred J. Wampler, M.D. The Williams & Wilkins Co., Baltimore, 1943.

Industrial Health, Kober and Hayhurst. P. Blakiston & Sons Co., Philadelphia, 1924.

Industrial Hygiene for Engineers and Managers. Carey F. McCord, M. D. Harper & Bros., New York, 1931.

Industrial Medicine. Clark and Drinker. National Medical Book Co., New York.

Occupational Medicine and Industrial Hygiene. Rutherford T. Johnstone, M. D. C. V. Mosby Co., St. Louis 3, Mo., 1947.

Industrial Health Engineering. Allen D. Brandt. John Wiley & Sons, New York, 1947.

Toxicology and Hygiene of Industrial Solvents. Edited by K. B. Lehmann and F. Flury; translated by Eleanor King and Henry F. Smyth, Jr. The Williams and Wilkins Co., Baltimore, 1943.

Noxious Gases and the Principles of Respiration Influencing Their Action. Yaddell Henderson and Howard W. Haggard. Reinhold Publishing Corp., New York, 1943.

Industrial Hygiene. Edited by A. J. Lanza and Jacob A. Goldberg. Oxford University Press, 1939.

Toxicity of Industrial Organic Solvents. Summaries of Published Work. Ethel Browning. H. M. Stationery Office, London, 1937.

Lead Poisoning. Abraham Cantarow, M.D., and Max Trumper, Ph.D. The Williams & Wilkins Co., Baltimore, 1944.

Silicosis and Asbestosis. Edited by A. J. Lanza, M.D. Oxford University Press, New York, 1938.

Occupational Diseases of the Skin. Louis Schwartz, M.D., Louis Tulipan, M.D., and Samuel M. Peck, M.D. Lea and Febiger, Philadelphia, 1947.

Women in Industry, Their Health and Efficiency. Anna M. Baetjer, D.Sc. W. B. Saunders Co., Philadelphia, 1946.

Industrial Hygiene and Toxicology. Edited by Frank A. Patty. Inter-Science Publishers, Inc., New York, 1948.

The Analytical Chemistry of Industrial Poisons, Hazards and Solvents. Morris B. Jacobs, Ph.D. Interscience Publishers, New York.

Industrial Toxicology. Alice Hamilton and Harriet L. Hardy. Harper & Bros., New York.

Protecting Plant Manpower—U. S. Dept. of Labor, Div. of Labor Standards, Special Bulletin No. 3.

Before He Starts Work, by Milton H. Kronenberg, M.D.—National Safety News, July 1948, p. 20.

Health Hazards Under the Microscope—National Safety News May 1948, p. 22.

The Summer Tyrants—Heat and Humidity—National Safety News, May 1948, p. 28.

Living with the Heat—National Safety News, June 1950, p. 34.

Getting Facts About Occupational Dermatoses—National Safety News, May 1951, p. 39.

Sleuthing for Skin Irritants, by C. H. Kalb, M.D.—Nov. 1950, p. 32.

Care of the Injured

First-Aid Textbook—American Red Cross. Caring for Injured Workers—Health Practices Pamphlet 8. National Safety Council.

Training for First Aid—Safe Practices Pamphlet 53. NSC.

Emergency Nursing Care of the Eyes in Industry—Safety Reprint Gen. 3. NSC.

Observations of a Company Nurse—National Safety News, Feb. 1949, p. 33.



MERCUROCHROME*

(H. W. & D. BRAND OF MERBROMIN, DIBROMOXYMERCURIFLUORESCIN SODIUM)

Do not neglect wounds, however small; even scratches and small cuts may become infected if they are not promptly and properly treated.

'Mercurochrome' (H.W. & D. brand of merbromin, dibromoxymercurifluorescein-sodium) is one of the best antiseptics for first aid use. It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association for this purpose.

The 2% aqueous solution is not irritating or toxic in wounds; minor injuries are reported more promptly when 'Mercurochrome' is the routine antiseptic, because treatment is not painful.

'Mercurochrome' solution keeps indefinitely; the color shows where it has been applied.

Physicians have used 'Mercurochrome' for more than 28 years.

Be sure to include 'Mercurochrome' in your first aid supplies.

*Reg. U. S. Pat. Off.



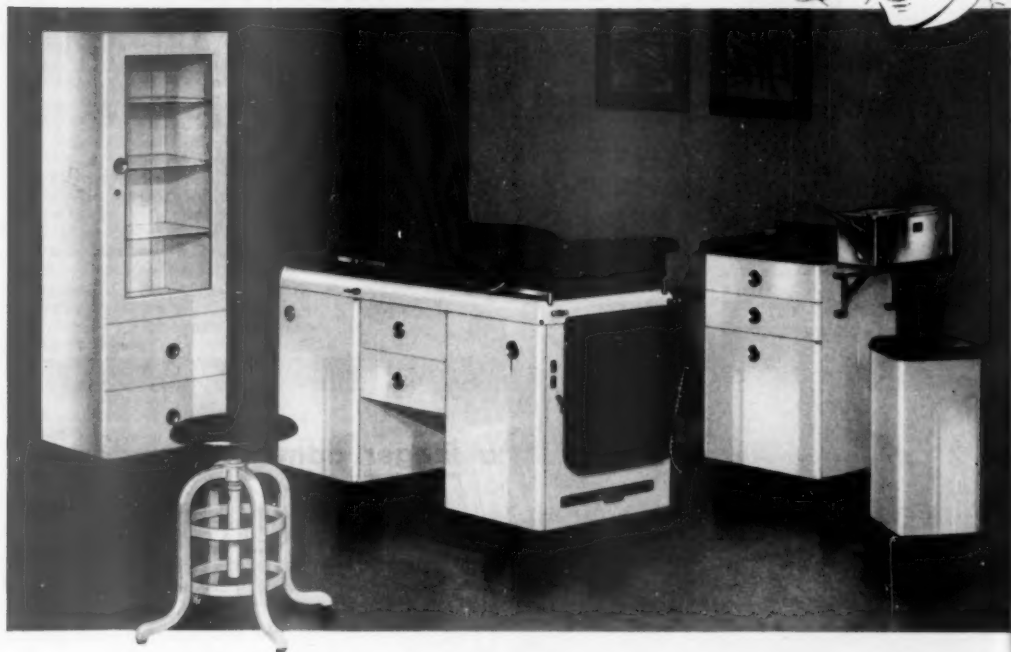
HYNISON, WESTCOTT & DUNNING, INC.



BALTIMORE, MARYLAND



..... offers the ultimate in
fine treatment room furniture



New exclusive functional features, advanced styling, long-term economy



New top design provides floating body support.



Top is completely flexible in positional adjustment.

Concealed paper sheeting holder for convenient use.



New concealed heel stirrups retract under table top when not in use.

For over fifteen years physicians everywhere have relied upon Steel line to give their offices an improved modern appearance and to make their office work easier, faster, more pleasant. Steel line, although intelligently modern in conception from the beginning, has never remained static in design. From time to time suggestions from many physicians have occasioned frequent improvements. The New Steel line, now in production, represents our supreme achievement in manufacturing physicians' office furniture. Many important New Steel line features are exclusive—not to be found in any other make of treatment room furniture, regardless of price. In long-term economy in use, Steel line has for years proved that quality construction, soundness of design and attention to detail in manufacture are factors that assure complete satisfaction to owners of Steel line. Fresh, new modern color finishes; magnetic latches for doors; out-of-sight paper sheeting roll holder; recessed, island-type bases; foam-rubber-cushioned table top; non-tarnishing, easy-to-grasp door handles; smoothly working, noiseless working parts; these are just a few of the features that make New Steel line the nation's leading treatment room furniture. Shown above is our de luxe New Steel line suite of five pieces. Prices for various room groups and individual pieces will be sent upon request. For prices on groups and individual pieces together with complete detailed information concerning New Steel line, please write for illustrated literature.



A. S. ALOE COMPANY • General Offices: 1831 Olive Street, St. Louis 3, Missouri
Branches: Los Angeles, New Orleans, Kansas City, Minneapolis and Washington, D. C.



**It costs no more...
does a man-size job...
does it right!**

**a longer adhesive bandage
... insist on  No. 100A**

You get extra length (a full $3\frac{1}{2}$ inches) when you buy the MSCo 100A 1-inch Adhesive Compress bandage. It's designed for Men of Industry—men who work with their hands and have muscular, well developed fingers and knuckles requiring a longer adhesive tape than ordinary compresses provide. This longer tape goes completely around joints or fingers and overlaps... prevents curling up at corners or peeling up at ends when hands get sweaty while working.

Notice how the protective crinoline opens off-center away from the pad and turned-back tabs keep soiled fingers from touching the sterilized pad. All 6 layers of the pad are a full $\frac{7}{8}$ " x $1\frac{1}{2}$ "—not just one layer but all 6. Also, this pad is all gauze, no cotton filler. It's placed on the tape in such a way that no loose threads stick out from under the tape.

Only MSCo, Medical Supply Company, brings you this longer adhesive compress with all of its extra advantages... and it's packed for the Flexible Unit System. Write your MSCo distributor or Medical Supply Company for samples of No. 100A today.

LONGER... the longest made... $3\frac{1}{2}$ "... fits all the way around and overlaps big fingers, knuckles, thumbs.

NON-FAVEL PAD... no loose threads in wound area... looks neat, stays neat! Pad is all gauze, no cotton filler.

OFF-CENTER OPENING... with turned-back tabs to protect sterile pad when soiled hands open it.



**Medical Supply Company • 1025-3 WEST STATE STREET
ROCKFORD, ILLINOIS**

Skin Hygiene

SKIN DISEASES are the most common occupational ailments. It has been estimated that they are responsible for as much as 60 per cent of all compensation claims for occupational diseases.

No occupation seems to be exempt, and even many normally harmless substances can irritate some skins.

There are two general types of industrial skin affections: (1) Primary irritant dermatitis; (2) Sensitization dermatitis.

Primary irritation dermatitis. Practically all persons suffer skin irritation from acids, alkalis, irritant gases and vapors, and physical agents, such as heat, cold and friction. Brief contact with a primary irritant in high concentration or prolonged exposure to a lower concentration results in skin inflammation. Allergy is not a factor in these conditions.

Sensitization dermatitis is the result of skin sensitivity to a given substance. This form requires a definite period of sensitization. During this period the offending substance causes no response unless there is contact with concentrations high enough to cause primary irritation. Once sensitization develops, even small amounts of the material can cause symptoms.

Some substances can produce both primary irritation and sensitization dermatitis. Among them are organic solvents, formaldehyde, and chromic acid.

Prevention. Primary irritation dermatitis depends essentially on exposure to relatively high concentrations of the irritant or for fairly long periods.

Mechanical methods of operation have been most successful in preventing these exposures. In some cases exhaust ventilation has been helpful.

Where mechanical methods are not practical, personal protective equipment is helpful. Aprons, sleeves, gloves, and for severe exposures even complete suits of impervious materials are available. (See Section 2—Personal Protection.)

Protective creams prepared for different types of irritants are also helpful in minimizing skin contact. These must be used regularly and applied several times during a shift.

Personal cleanliness is essential in preventing both types of dermatitis. Frequent washing with a safe skin cleanser and warm water reduces the time irritant is in contact with the skin. (See Section 1, Washroom and Lockers.)

In sensitization dermatitis, prevention of the original exposure is essential. This is the cause of the allergic state. Once this state is reached, even small quantities of the substance will cause trouble. Extreme care should therefore be used in handling potential sensitizers.

Tests for sensitivity in selecting

ANOTHER FIRST-AID "FIRST"!

Davis, originator of the D-Carton First Aid System, pioneers another long-felt first aid need—a dressing that can be applied easily and quickly with one hand by the injured person himself.

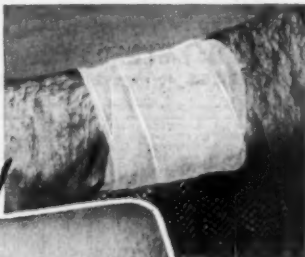
Impregnated with a newly developed adherent substance the bandage with cotton lined 2" x 2", or 2" x 4" gauze pad stays put without slipping or unwinding.

CAN BE PUT ON WITH ONE HAND!



SELF-ADHERING GAUZE COMPRESS BANDAGE

- Self-adhering—does not adhere to skin
- No tearing, no cutting, nothing to tie
- Costs no more than a conventional bandage-tempress
- Packaged for the Davis D-Carton System
- Individually wrapped and sterilized



Write for
Bulletin #321

DAVIS EMERGENCY EQUIPMENT CO., INC.

45 HALLECK ST.,

NEWARK 4, N. J.



ACE SALT TABLET DISPENSER

NEW—DIFFERENT

ECONOMICAL

SANITARY 95% GLASS AND PLASTIC

STRONG—SIMPLE

FOOL-PROOF

The last word in salt tablet dispensers. Holds 750 10-grain tablets. Price \$2.50 each, Postpaid.

2000 salt tablets in a bag \$1.25 per bag postpaid. Liberal discount to distributors.

ACE MANUFACTURING COMPANY

PADUCAH, KY.

Your Men's LIVES can be saved

by an **EMERSON**
Resuscitator

The most effective treatment in asphyxial accidents—according to modern medical research—is immediate automatic positive-and-negative resuscitation with oxygen.

Greater ventilation is obtained than by manual methods. The negative pressure phase helps circulation. Operation of an EMERSON RESUSCITATOR is simple and safe . . . there is no known instance of injury from this method, though used many thousands of times by doctors and laymen.

In less serious cases, where breathing needs only a little aid, your EMERSON can be used as a plain INHALATOR, to supply oxygen.

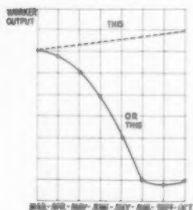
Write for
Our Bibliography of Medical Research
on Resuscitation.

J. H. EMERSON CO.
CAMBRIDGE 40, MASSACHUSETTS

Emerson Resuscitators are for use only by professional or other adequately trained personnel and not intended to replace manually-applied resuscitation but to supplement it. Every policeman, fireman, and responsible factory worker should know what a resuscitator can do to save lives and how to operate it.



The Question



One Answer



When Fatigue Steps In — Production Steps Out!

An obvious statement? Sure . . . but are you provided with the means of combating heat fatigue—an all-important cause for that "tired-out" feeling?

It's really so easy to beat heat fatigue! Fairway Salt Tablets do the work for you . . . by replacing vital body salts lost through perspiration.

And to answer your objection that some men, and especially women, just "can't take" salt tablets—the Fairway Enteric Coated Tablet is in order! Taken as directed, there is no nausea from Fairway Enterics . . . sensitive stomachs are protected.

Keep your worker output at a high level . . . Write NOW for Bulletin No. 506 describing completely Fairway Salt Tablets and Dispensers!

STANDARD SAFETY EQUIPMENT CO.

232 WEST ONTARIO STREET — CHICAGO 10, ILL.

FAIRWAY Salt Means Summer Savings!

workers are of questionable value. There are practical difficulties in determining sensitivity and workers are likely to be transferred from job to job with resulting exposure to a variety of irritants.

Cutting oils and compounds are frequently involved in dermatitis where cutting and turning of metals is performed. Skin affections are most commonly caused by blocking of the hair follicles by oil as well as by the defatting action of petroleum products.

Laboratory tests have failed to show significant numbers of pathogenic organisms in cutting oils. If sterilization is considered necessary, heat is the preferred method. Addition of germicides may cause skin irritation.

Periodic removal of oil from the machine, filtering to remove foreign materials, and thorough cleaning of the machine before replacing are recommended.

Cutting compounds (oil-water emulsions) should be changed frequently. The old emulsion should be discarded, the machine cleaned thoroughly and refilled with fresh compound.

Other occupational affections include lesions from contact with paraffin, pitch, coal tar, arsenic, and certain oils.

Medical supervision. Workers exposed to agents which produce these conditions should be examined frequently. Personal cleanliness should be encouraged by the provision of adequate sanitary facilities and by supervision and education.

Workers who suffer recurring attacks should be transferred to jobs where they will not be exposed to the offending substance.

CUTTING OILS and COMPOUNDS (Skin Troubles)

Operators who work with cutting oils and compounds may be troubled with rash, pimples, or boils, if they permit the skin to become plugged with dirt and oil.



1. Before beginning work, bath in the morning and after lunch, wash hands and arms with soap and warm water.
2. When quitting work, bath at noon and night, scrub hands and arms thoroughly with soap, warm water and a soft brush.
3. After each working and scrubbing, rub the flesh with vasoline, lanolin, or other ointment to prevent chapping.
4. Keep an individual soft brush and soft towel for your own use. Avoid hard or stiff brushes.
5. Do not wipe the hands with waste; metal particles on the flesh or in the waste may scratch the skin.
6. Have your working clothes laundered at least once a week.
7. Get first aid promptly for all cuts and scratches.
8. Report to your foreman at the first sign of skin irritation.
9. Never permit anyone to spill in the oil pans or reservoir, or contaminate the cutting fluid in any way.



SAFETY INSTRUCTION CARD No. 304

'PAC-KIT' FIRST AID

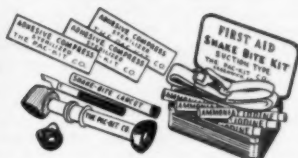
MODERN UNIT TYPE
FIRST AID EQUIPMENT
FOR EVERY EMERGENCY



Provides standard products each packed in individual cartons with illustrated First Aid Instructions.

Electrically welded 20 gauge steel, dust and moistureproof cases provide complete protection of contents, give long service.

No. 748 SNAKE BITE
SUCTION FIRST AID

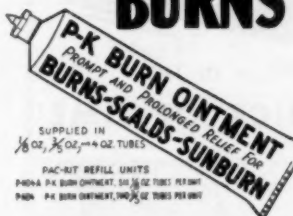


Easily operated with one hand. ANY-ONE can give effective first aid. KIT CONTAINS: Tourniquet, Lancet and Suction Syringe, with

- 1 Curved Rubber Suction Cup
- 1 Large Rubber Suction Cup
- 3 Iodine Applicators
- 3 Ammonia Inhalants
- 3 Adhesive Compresses

Wt. complete in metal case, 7 ozs.

IMPROVED FIRST AID
FOR **BURNS**



SUPPLIED IN
1/8 oz., 1/2 oz., 1 oz. TUBES

PAC-KIT REFILL UNITS
PAC-KIT P-K BURN OINTMENT, 1/8 oz. TUBE PER UNIT
PAC-KIT P-K BURN OINTMENT, 1/2 oz. TUBE PER UNIT

FIRE, ELECTRICAL, WELDING,
STEAM AND FRICTION BURNS.

Scalds—Sunburn—Windburn

P-K BURN OINTMENT provides immediate and sustained relief. It is a soft Lanoline base cream with an effective analgesic. Liberal free sample on request.

VISIT OUR EXHIBIT BOOTH NO. 103, GREATER NEW YORK SAFETY CONVENTION

Write for descriptive literature and prices.

THE PAC-KIT COMPANY

P.O. BOX 1306
GREENWICH, CONN.

FIRST THOUGHT FOR FIRST AID

Vaseline Sterile Petrolatum Gauze Dressings

TRADE-MARK

Chesebrough Mfg. Co., Cons'd • New York 4, N. Y.

Professional Products Division

VASELINE is the registered trade-mark of the Chesebrough Mfg. Co., Cons'd

To Open foil-envelope, cut with scissors along dotted line on back of envelope... or in an emergency, tear off seal carefully below this line... end of dressing is pulled out of envelope with one hand (use forceps, if handy), while envelope is held with other hand.



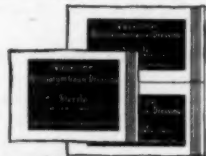
Cover damaged surface and area two inches beyond with two layers or more of petrolatum gauze dressing... then apply sterile dry bandage to keep clean and hold gently in place—using first-aid principles... have injury examined by a physician.

*always sterile
always ready*

For immediate and easy application, to dress a Burn, an Abrasion, certain other Surface Injuries.

ready-made... compact...
soothing... non-sticking...
non-contaminating...

USED DIRECT FROM HANDY
FOIL-ENVELOPE



Two Sizes:

Unit envelope: one 3" x 36" dressing.
Duplex envelope: two 3" x 18" dressings.
Six envelopes to the illustrated carton.

OBTAINABLE FROM YOUR
USUAL SOURCE OF MEDICAL SUPPLIES

**JET QUICK
ACTION**

**IN THE
"NICK OF TIME"**



Gebauer's **TANNIC SPRAY** **Your BEST First Aid** **for Minor Burns**

Prompt action in the first few seconds—or the first few minutes—can make all the difference in the treatment of burns.

The more quickly a burn is treated, the less likely is it to form painful, ugly blisters—to require further treatment—to cause the loss of precious man-hours.

Always ready for INSTANT use, Gebauer's TANNIC SPRAY is applied by the touch of a thumb, covering the painful area in jet-quick time with a cooling, soothing, healing solution of tannic acid that dries in seconds, leaving a thin, transparent coating that can eliminate the need of a bandage.

Employees like the way TANNIC SPRAY gives instant, sure relief—leaves them without awkward, hampering bandages. Employers like the rapid way it is applied—the time it saves in treatment—and later.

GEBAUER'S TANNIC SPRAY may be obtained at your surgical supply house—or write Dept. W.

THE GEBAUER CHEMICAL COMPANY

9410 St. Catherine Ave.
Cleveland 10, Ohio

Hot Weather Health

MAINTAINING HEALTH, comfort and efficiency in hot weather requires attention to working conditions by the employer and sensible health habits by the worker.

Good ventilation is the first essential in reducing discomfort. Adequate washroom facilities and drinking water are also needed. Canteens and lunchrooms also help to relieve fatigue.

Acute Ailments

Exposure to extreme heat, especially during exertion, may result in heat cramps, heat exhaustion or heat stroke. Knowledge of first-aid treatment is important. All cases should have medical attention.

Heat cramps come suddenly and may involve skeletal or intestinal muscles. If respiratory muscles are involved, there may be difficulty in breathing, with resulting cyanosis. Under proper treatment, recovery is usually rapid.

Heat exhaustion is believed to be due to the effect of heat on the brain, with resulting derangement of the regulating center, and loss of body salt due to profuse sweating. Muscle cramps are often present. The victim may be unconscious.

Heatstroke (often called "sun-stroke") results from paralysis of the heat-regulating center. There may be severe headache, dizziness, visual disturbances and loss of consciousness, but rarely muscle cramps. The patient has a high temperature. Death may occur within a few hours, but if timely treatment is available, the patient has a good chance of recovery. One of the after-effects is inability to withstand heat.

In general, the same precautions will help to minimize all types of disability due to heat.

Serious exposures include boiler and engine rooms, foundries, steel geries. In strong sunlight, the head dries. Seasonal heat hazards are found in construction work, public utility and highway maintenance, and farming.

Sunburn can be painful and dangerous. In strong sunlight, the head should be covered and exposure of the skin kept at a minimum. Tan should be acquired gradually. Treatment for sunburn is the same as for any other type of burn.

Use of Salt

Heavy manual labor, with profuse perspiration, intensifies the effects of heat due to the season or the manufacturing processes. Formerly heat cramps were frequent on these jobs. Illness was often attributed to drinking too much cold water while overheated. Now it is known that loss of body salt through perspiration is the chief cause.

Maintaining the salt in the body at

an adequate level enables men to work at strenuous occupations in high temperatures. For sedentary workers, normal use of salt with food may be sufficient, but those whose jobs require greater physical exertion may not take enough by this method.

Dispensing. The most convenient and popular method for providing salt is in tablet form. The 10-grain size is more frequently used, and it may be obtained either as pure salt or in a combination of 70 per cent salt and 30 per cent dextrose. Tablets containing dextrose are more palatable and more easily assimilated.

For those who find difficulty in taking even a moderate amount of salt, enteric-coated tablets are available. These pass through the stomach intact and dissolve in the intestines.

In most plants, a dispenser for salt tablets will be found beside the drinking fountain. Dispensers are made in several styles and sizes.

The drink of water which accompanies the tablet is as important as the salt.

Another method is to add salt to the water. This is practicable where the drinking water is not used in the industrial processes. Concentrations of from .1 to .5 per cent, depending upon the temperatures and nature of the work, are used in some plants.

Use of salted drinking water should be under medical supervision.

Caution. Persons with kidney or heart disease or high blood pressure should seek medical advice on the use of salt. However, such men should not be placed on jobs where they would be exposed to high temperatures or heavy manual work.

HEAT EXHAUSTION AND HEAT CRAMPS (Prevention)

Heat exhaustion and heat cramps come from over-exposure to sun or intense heat. Do not confuse heat exhaustion with sunstroke or heatstroke, which are entirely different conditions and require different treatment.

Symptoms

1. The face is pale; there are chills, dizziness, vomiting, much sweating, rapid and shallow breathing, rapid and weak pulse, general weakness, and temperature below normal.
2. Unconsciousness and sometimes death may follow in severe cases.
3. There may be cramps in the abdomen and in the muscles of the arms and legs.

Prevention

1. Avoid alcohol and ice-water; drink cool water and lemonade and the juice of other citrus fruits.
2. In hot weather eat vegetables and light, easily digested foods; avoid heavy, fat food.
3. Wear light, loose clothing; avoid over-fatigue; bathe daily; get plenty of sleep.
4. Replace body salt lost through perspiration by eating the food, drinking salt in water, or by taking salt tablets.
5. See a doctor if you feel sick to your stomach, if the bowels are out of order, or if you otherwise feel ill.



SAFETY INSTRUCTION CARD No. 197

National Safety Council, Inc., Chicago PRINTED IN U.S.A.

The Medical Department

(From page 181)

showing visual defects are referred to ophthalmologists or optometrists for refraction tests.

Hearing. By means of the audiometer, acuteness of hearing can be determined and treatment indicated. Any progressive loss of hearing, through noisy work or other causes, can be measured.

Chest. For many occupations, pre-employment and periodic examinations include X-rays of the chest. Mass chest surveys are made at regular intervals in industries where health hazards require frequent checks, and in public health campaigns to detect incipient cases of tuberculosis.

Trained technicians with mobile equipment can be engaged to conduct mass X-ray surveys.

Consultants

The medical director, like the private practitioner, cannot be expected to be an expert in all branches of medical sciences. Both find it necessary at times to call on specialists when diagnosis is uncertain or treatment requires specialized techniques.

Surgeons. In all surgical cases where there is danger of inaccurate diagnosis or inadequate treatment, outside consultation should be called in early. Frequently, the administrative and diagnostic ability of the medical director is more important than his skill in surgery. The plant physician should refer all cases which might be beyond his training and experience to a specialist or surgeon.

Oculists. Injuries to the eyes are among the most frequent of occupational injuries. The importance of the eyes is so great that highest available skill should be secured. Specialists should be summoned in all potentially serious cases.

The oculist can also serve industry in correcting defective vision among employees. The employee should, of course, have the privilege of choosing his own oculist or optometrist but frequently he will ask the advice of the medical department on the choice of a specialist. Where prescription goggles are indicated, some companies provide the examination.

Dentists. According to available records, injuries to the teeth are relatively infrequent. Such cases are usually sent outside for treatment. The medical department should have a list of dentists qualified to treat such injuries.

The importance of oral hygiene has led many companies to provide dental examinations, sometimes including full-mouth X-rays. The findings are usually referred to the employee's dentist since few companies provide restorative dentistry.

MEDICAL FACILITIES

Recommended Standards

1. In plants of 500 or more, a full-time nurse should be in attendance. A physician should be present at the daily dressing hour.
2. Number of treatment rooms:
50 to 500 employees..... 1
500 to 1000 employees..... 2
1000 to 5000 employees.... 3
5000 to 10,000 employees... 5
3. For plants of more than 1,000 employees the dispensary should be equipped with bath and toilet, equipment for minor surgery, and other apparatus and supplies selected by the physician in charge.
4. One or more beds should be provided where severe cases may be made comfortable during observation or while waiting for transportation to a general hospital.
5. An X-ray room, if facilities are not available in a local hospital or physician's office.
6. The hospital should be under full charge of the company physician.

EYE WASHING FOUNTAIN



SAVE EYES!

Leading industrial doctors advise immediate washing with plenty of running water as the best first aid treatment for any chemical in the eyes. Records prove that washing with water for ten minutes or more, close to the accident, is necessary to reduce or eliminate eye damage.


Forehand operation leaves hands free to open eyelids as water can be directed wherever chemicals might be lodged. Sanitary white baked enamel bowl is resistant to most fumes.

Over 500 industrial plant installations have been made to date.

Write For Details.

NEW EMERGENCY SHOWER

VALVE Chain Operated Quick Action Self-Closing



Deluge of Water 30 to 40 G.P.M.

The B & A Shower is the quickest and most satisfactory way to saturate a worker with gallons of water the instant an accident occurs, to prevent a disfiguring burn—even a fatality.

Special shower head, no holes to clog—can be used where unfiltered water prevails.

Write For Details.

GLASS SLIVERS AND CHEMICAL IN EYES!

DISFIGURING FACIAL CUTS AND BURNS!

CUTS AND CHEMICAL BURNS ON ARMS AND BODY!

THIS HAPPENS WHEN UNPROTECTED GLASS BOTTLES ARE BUMPED



NEW LOW COST B & A SAF-T-BAGS

are widely used for the safe handling of glass bottles containing harmful chemicals; also the storage and recovery of expensive serums, biologicals, and other costly products.

Painful cuts, disfiguring burns, loss of eyesight, or even a fatality, do result from corrosive liquid splash and flying glass when unprotected bottles shatter.

5 PINT
1 GALLON
5 GALLON

Write For Details.

BENSON & ASSOCIATES, INC.
P.O. Box 7542, Dept. NS, Chicago 80, Illinois

Durham

"FIRST" IN FIRST AID KITS and CABINETS

Since 1922



DURHAM specializes in heavy-duty metal first aid kits[®] featuring exclusive waterproof gasket construction, spring steel "cushion action" catches and 20-gauge steel welded throughout. Durham extra quality assures extra long service life and positive protection of contents even under extreme conditions. Leading users recognize Durham as the country's pioneer and largest producer of first aid kits and cabinets.

Write for Bulletin 278 describing standard unit kits and larger industrial cabinets available. We also have complete facilities for designing, fabricating and finishing to your specifications.

* Kits only less contents.

THE DURHAM MFG. CO.
500 Main Street
DURHAM • CONNECTICUT

Salvaged Skills

(From page 7)

warn against the hazards of ill-advised placement of handicapped workers. The man with a bad heart or one glass eye does not belong on a ladder or a scaffold. The hernia sufferer must be kept away from lifting jobs. The mal-nourished don't thrive on pick-and-shovel work, and the overweight are poor risks on jobs calling for much running or stair climbing.

There was a time, perhaps, when we could afford the luxury of being hard-hearted about the more conspic-

uously handicapped. We could set standards that would keep them out of the plant—if we found out about their handicaps.

But that time is gone. We need men and women to do our work, and we have no fine pool of surplus labor from which to draw them. It is, granted, more difficult to discriminate between handicaps and to set accurate standards for jobs than it is to make blanket pronouncements. But it is a necessity today, with the short labor supply.

And, incidentally, it is the far more humane, efficient, and socially desirable way to handle the problem, come boom or depression.

Unsafe Plant Barred from Government Contracts

Recent action by Secretary of Labor Maurice J. Tobin barring an Ohio crane manufacturer from Government contracts let under the Walsh-Healy Public Contracts Act, emphasizes the importance of compliance with the provisions of this Act on the part of businesses covered.

Under the Public Contracts Act, which applies to Government manufacture and supply contracts in excess of \$10,000, any employer who violates any provision is automatically ineligible to receive further Government contracts during a three-year period, unless the Secretary rules to the contrary.

Among other things, the Act provides that the contract may not be performed nor the materials, supplies, articles, or equipment manufactured or furnished under working conditions which are insanitary or hazardous or dangerous to the health and safety of employees engaged in the performance of the contract.

Compliance with the safety, sanitary, and factory inspection laws of the State in which the work is performed is *prima facie* but not conclusive evidence of compliance with this provision of the Act.

In the case referred to above Secretary Tobin supported the findings of William R. McComb, Administrator of the Public Contracts Division, that the company officers had demonstrated a "seeming indifference to the safety and health of their employees." It was further stated that insanitary and unsafe conditions which had been brought to the attention of the company in 1944 still existed in 1950.

Copies of the Act, which contains wage, hours, and other provisions, in addition to the health and safety requirements, may be secured from the United States Department of Labor, Division of Public Contracts.

Performance Tests for Wax Polishes

Performance standards will occupy a prominent place in the program of the recently formed Committee D-21 on wax polishes and related materials, which functions under the auspices of the American Society for Testing Materials. Officers elected for the term ending with the annual meeting of the ASTM in June 1952 are: Chairman—W. W. Walton, National Bureau of Standards; Vice-chairman—Dr. J. Vernon Steinle, S. C. Johnson & Son, Inc.; Secretary—B. S. Johnson, Franklin Research Company.

Among the projects planned for subcommittees are the development of tests for slip resistance, wear and appearance.

ANOTHER

STA-SAFE

PRODUCT

Be Ready When the Heat Comes!

Just to remind you that in a short time you'll be needing additional supplies of salt tablets and dispensers.



STA-SAFE
ALL-METAL DISPENSERS

The Sta-Safe Junior — 1500 tablet capacity, equipped with lock and key, wall bracket, and inspection window.



The Sta-Safe Midget — 600 tablet capacity — otherwise the same construction as the Sta-Safe Junior.



FAIRWAY
PLASTIC DISPENSERS

The Fairway Midget — 350 tablet capacity — otherwise the same construction as the Fairway Junior.



The Fairway Junior — 1500 capacity, with wall bracket, window, built-in lock and key, transparent cover over discharge spout.



FAIRWAY
CRYSTAL DISPENSERS

Here is a transparent, plastic container that can be discarded after contents is used! Comes filled with 500 Enteric Coated Salt Tablets. Inexpensive, sanitary and easy to operate.

Write TODAY for Bulletin No. 509

STANDARD SAFETY

EQUIPMENT COMPANY

232 W. MONTAGU • CHICAGO, ILLINOIS

Safety Promotion and Training

Training Materials

ANY CONSIDERATION of the physical equipment of accident prevention should not overlook the many items that have been developed for safety education and the promotion of safety-conscious attitudes on the part of workers.

From the day he enters the personnel office to apply for his first job until he reaches the age for retirement from plant activity, the workman's personal welfare and his value to the production team can be influenced favorably by use of the hundreds of devices of mass communication created for the first of safety's famous "three E's" — Education.

Safety rule books may be the first of these items seen by the new worker, as many firms give copies as part of the induction procedure. Types range from simple, home-made mimeographed sheets or leaflets to elaborate books, made attractive with color and illustrated with cartoons, drawings and photographs.

Films may also be used in the indoctrination period to acquaint the recruit not only with the safety program but also with essential facts about the company and its aims. The newcomer will see film presentations at the beginning and throughout his employment as this effective medium is used for training at different steps in his career.

Films are likely to prove a most effective training aid because the worker is already conditioned for this means of communication, which combines the perceptions of sight and sound in a form that makes a lasting impression. Types include strip films that present individual frames by projection, as the voice of the instructor adds the commentary; sound slidefilms that use a similar strip with a disc or tape recorded commentary; separate projection slides used with either live voice or record; silent movies and sound movies.

Safety films covering specific hazards and different industrial operations as well as training films covering every kind of activity are

available from the National Safety Council film division and from many other sources.

Exhibits of the various types of safety equipment, personal protective devices and the like are shown to the new worker in many plants to impress upon him the importance of safe operation and the extensive precautions taken by the company to protect him.

Posters will greet his eye, with splashes of color and pertinent safety messages, as the worker is escorted through the plant to meet his foreman, who will direct his initial training and supervise his work. Week after week he will see new posters, covering various hazards and relating to different safety themes. These graphic displays will inform and remind, and often they will amuse, since the creators of safety posters have learned that the light touch can be most effective in dealing with this serious subject.

Each new poster offering will get the worker's conscious attention in the beginning. After that, each time his glance falls on the design, another impression will be recorded on his subconscious mind, building his safety attitude. It is this factor of repetition that has proved the remarkable power of the poster medium in influencing behavior.

Wall charts giving how-to-do-it information will help the worker both in safety and production, and plant safety score card charts will remind him of the accident record—or bolster his pride in the plant no-accident record.

Safety instruction cards, covering the hazards of practically every type of industrial operation as well as seasonal and off-the-job subjects, may be handed to him by his foreman as part of the training program or as pertinent reminders of specific hazards connected with his job.

Bulletin boards in prominent locations around the plant will carry many of the above posters, charts and cards, as well as announcements, photographs of accidents or hazardous situations, displays of protective articles that have saved life or limb for fellow workers, personal items and other trivia that will attract the interest of the employees.

Safetygraphs are among the newer special tools placed in the hands of foremen and other teachers for the training of groups of workers in specific phases of safety. These are collections of drawings, cartoons, charts and other illustrations, printed on heavy paper and spiral-bound in a folder that opens to form an easel. With the large illustration facing the audience, the foreman discusses the subject portrayed, using his own words or reading the suggested pattern printed on the page facing him.

Illustrated Safety Talks, similar in format to the Safetygraphs but smaller in size, now are being produced for similar use. Three subjects have been covered in this series, whereas 19 Safetygraphs have been produced.

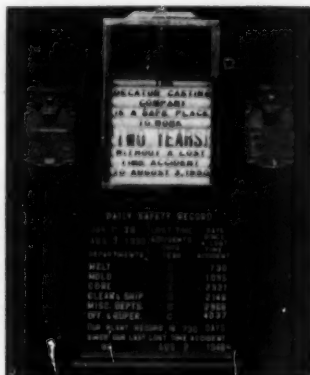
Publications

Photocopies are give-away booklets for the workers—to teach safety with pictures. Actual on-the-scene photos make these training aids realistic and convincing.

The Safe Worker is a monthly publication for employees that has proved popular wherever circulated. Humorously written and illustrated, it covers seasonal and general safety themes. Workers in the transportation fields get similar publications called The Safe Driver and The Safe Railroad.

Numerous miscellaneous booklets published by the National Safety

—To page 200



Bulletin boards with changeable letters are useful for displaying slogans and the up-to-date figures on the safety record. (Decatur Casting Company)

IN THIS SECTION

Training Materials	193
Safety Signs	194
Coming Events	195

Safety Signs

SIGNS are among the oldest of all methods for conveying information. They are simple and most effective in the safety effort, as they warn of hazards, direct, regulate and educate. Even to the illiterate their meaning should be clear and their message should be conveyed at a glance.

Response to the directions of signs is practically automatic, as we have been conditioned to them throughout our lives.

Dominance of a sign is the result of contrast with its surroundings. This is achieved through a combination of shape, color, wording and location. Recognition of these factors has led to the adoption of standards that promote uniformity in design and color for signs that fall into various classifications. When both commercial and home-made signs conform to these standards, they will be recognized instantly as referring to certain hazards.

According to the American Standards Association code, characteristic colors for signs should be:

1. Danger—Red.
2. Caution—Yellow.
3. Safety Instruction—Green.
4. Direction—Black.
5. Information—Any combination of colors, except red and yellow.

Visibility of warning signs is a first requisite. Special illumination may be necessary in poorly lighted areas.

Black on white and black on yellow are the most visible combinations. Other combinations are white on black; yellow on black; dark blue on yellow; red on white; blue on white; white on blue.

Yellow is regarded as the most conspicuous color in daylight; red can be seen most readily by artificial light.

Red is universally accepted to denote danger or fire apparatus. This should always be considered in choosing color combinations for danger signs. Its force should not be weakened by indiscriminate use.

Color combinations that contrast with surrounding colors should be used so they will stand out clearly. Use only permanent colors.

Location is an important factor, and the effect of a warning sign is wasted if it cannot be seen easily or if it is too far from or too close to the real point of danger.

Wording of signs should be brief, clear and understandable to persons with limited vocabulary.

Wherever the nature of the hazard may not be evident, the sign should if possible specify the danger, such as "Gasoline Storage."

The shorter the wording the better, but many people resent too brusque an order, however impersonal it may be. The best sign will, if it expresses more than a mere stereotyped phrase, like **stop** or **slow**, invite cooperation rather than demand conformity.

Lettering should be as large as possible, consistent with balance and legibility. Block letters are recommended for ease in reading.

The weight of line in the body of each letter should be about the same as the spaces between the lines.

Tables of distances at which well proportioned letters can be read by persons of normal vision under good lighting conditions are given in the American Standards code referred to above. This code also offers detailed specifications on sign construction of the standard types.

Danger signs should be restricted to such immediate and serious hazards as high voltage equipment, toxic and corrosive chemicals, collision hazards, explosives, etc. Employees should be warned of their importance.

Caution signs warn employees against potential hazards, such as improper use of elevators, cluttered aisles, and sparks from grinding wheels; or against unsafe practices such as oiling machinery in motion, smoking in forbidden areas, and operating machines with detached guards.

Workers should learn to respond to a caution sign as an indication of potential danger requiring care and alertness. The difference between the danger sign and the caution sign is one of degree.

Other general types include safety instruction signs, which designate certain actions or practices, directional signs, and information signs.

REFERENCES

Safety Promotion and Training

National Safety Council:

Maintaining Interest in Safety—Safe Practices Pamphlet 67.

Teaching Safety to New Employees—SPP 65.

Safety Contests—SPP 74.

More Power to the Voice of Safety—National Safety News, May 1949, p. 24.

To Get an Audience, We've Got To Be Good, by M. R. Freeman—National Safety News, July 1949.

Safety on the Wire—National Safety News, Apr. 1949, p. 26.

Industrial Accident Prevention Signs—SPP 81.

American Standards Assn.:

Industrial Accident Prevention Signs, Specifications for—Z35.1-1941.

Maintenance. Periodic inspection and inventory of signs should be part of the safety program. Signs should receive the same cleaning and maintenance that is given to other equipment. Dirty and disfigured signs are not convincing.

Signs which are no longer needed should be removed. Where hazards have changed, signs more appropriate to present conditions should be substituted.

Warning tags come in a variety of stock subjects. They are attached to equipment in emergencies to warn others that men are working on machines, that a valve on a pipe line has been shut because of a leak, etc. They are also used on unsafe equipment which is to be removed from service.

Safety decals are miniature signs which can be attached permanently to machines, walls or other places where a message of warning, caution or brief instruction is needed. They conform to the standard specifications of design and color.



Safety bulletin board displays are found wherever units of the U. S. Armed Forces are stationed. This photo is from the U. S. Air Forces in Europe.

Stonehouse Stock Worded FALLING HAZARD Steel Signs



Our complete Catalog No. 9 free on request

Stonehouse
SIGNS, Inc. Manufacturers

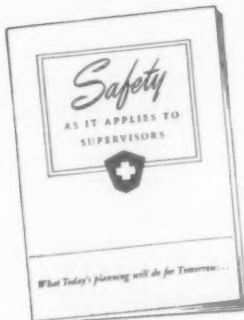
"Signs Since 1863"

Stonehouse Building • 9th at Larimer • Denver 4, Colorado • AComa 2202

National Safety News, March, 1951

195

PLANT SAFETY



Our helpful booklet "Safety as it Applies to Supervisors" is being used today by many progressive companies in their safety education programs. It is planned and produced by Marsh & McLennan's nation-wide staff of engineers. Write for your free copy today.

MARSH & McLENNAN

INCORPORATED

INSURANCE BROKERS • CONSULTING ACTUARIES

Chicago New York San Francisco Minneapolis Detroit Boston Los Angeles Pittsburgh
Seattle St. Louis St. Paul Duluth Indianapolis Portland Superior Cleveland
Buffalo Columbus Phoenix Vancouver Toronto Montreal Havana London

DAV-SON HIGH VISIBILITY SAFETY REMINDERS

Dav-Son Bulletin Boards are especially designed to get the maximum attention for your messages. Dav-Son equipped plants everywhere are maintaining envious safety records. Write for circular describing the many styles available.



DAV-SON CORK BACK BULLETIN BOARDS

- For Inside or Outdoor Use
- Wood or Metal Frames
- Glass Enclosed or Open
- Real Cork Mounting Surface
- Illuminated or Non-Illuminated
- Many Sizes. Low Cost.



DAV-SON

"The Safety Director"
Flashing Color, Changeable Letter Display for Timely Safety Messages. The most effective safety bulletin made. Write for special circular.

We are manufacturers of bulletin boards for every purpose. Changeable letter directories, production control and sales bulletin boards, cork back boards, and special display boards of all types.

CONSULT US



A.C. DAVENPORT & SON., INC.

ESTABLISHED 1932

311 N. DESPLAINES ST., CHICAGO 6, ILL.

MANUFACTURERS OF BULLETIN BOARDS FOR EVERY NEED

COMING EVENTS

In the Field of Safety

Mar. 19-20, Boston

Thirtieth Annual Safety Conference and Exposition, Edgar F. Copell, president, Massachusetts Safety Council, 31 State St., Boston 9, Mass.

Mar. 26-27, San Antonio, Tex.

Texas Safety Association, Inc., Annual Conference. (Gunter Hotel). J. O. Musick, general manager, 815 Brown Bldg., Austin, Tex.

Apr. 3-6, New York

Twenty-first Annual Greater New York Safety Convention and Exposition. (Hotel Statler). Paul F. Stricker, executive vice-president, Greater New York Safety Council, 60 E. 42nd St., New York 17.

Apr. 10-12, Columbus, O.

Twenty-first All Ohio Safety Congress and Exhibit. (Neil House). James H. Fluker, Superintendent, Division of Safety and Hygiene, Industrial Commission of Ohio, Columbus 15, Ohio.

Apr. 18-20, Tulsa, Okla.

Annual Statewide Safety Conference. (Mayo Hotel). Lloyd Palmer, manager, Oklahoma State Safety Council, Oklahoma City, Okla.

Apr. 18-20, Charleston, W. Va.

Seventeenth Annual West Virginia Statewide Safety Conference. (Daniel Boone Hotel). Mrs. W. C. Easley, acting managing director, and executive secretary, West Virginia Safety Council, 316 Masonic Bldg., Charleston, W. Va.

Apr. 19-20, Louisville, Ky.

Annual Kentucky Statewide Safety Conference. (Kentucky Hotel). Estel Hack, managing director, Louisville Safety Council, 214 Speed Bldg., Louisville, Ky.

Apr. 19-21, Kansas City, Mo.

Central States Safety Congress. George M. Burns, director, Kansas City Safety Council, 419 Dwight Bldg., Kansas City 6, Mo.

Apr. 23-24, Toronto, Ont.

Industrial Accident Prevention Associations, Annual Convention. (Royal York Hotel). R. G. D. Anderson, general manager, IAPA, 600 Bay St., Toronto 2, Ont.

Apr. 23-26, Pittsburgh, Pa.

Twenty-sixth Annual Western Pennsylvania Safety Conference and Exhibit. (William Penn Hotel). Harry H. Brainerd, executive manager, Western Pennsylvania Safety Council, 605 Park Bldg., Pittsburgh 22, Pa.

—To page 198



TALK TO EMPLOYEES

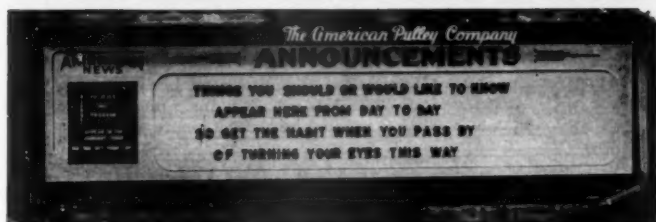
**day
or
night,**

at least twice daily

Bring your message to their attention quickly,
forcefully, effectively, by using a

WAGNER CHANGEABLE COPY DISPLAY

Here's a potent medium for use in employee relations programs and safety promotion. The message of yesterday is easily changed in a few seconds to a freshly interesting message for today. Letters in a variety of sizes and colors are available in both translucent plastic or aluminum silhouette. The mounting frames may be simple or elaborate.



WAGNER *sign service, inc.*

USE THE COUPON TO OBTAIN
FURTHER DETAILS AND
CATALOG

356 S. Hayne Avenue

Chicago 12, Ill.

Please send details and free catalog on Wagner Changeable Copy Displays.

NAME _____

FIRM _____

ADDRESS _____

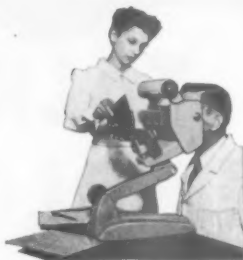
CITY _____

STATE _____

For DEFENSE PROGRESS —

**INCREASE your
Personnel's**

VISUAL EFFICIENCY



Accidents lessen production and increase spoilage—and poor vision is one of the most important contributing causes of accidents.

Now is the time to install a **Keystone Occupational Visual Service**. A sampling test, run on a group of your own employees, will show that a Visual Testing program will give you the results that thousands of plants are reporting:

LOWER production costs and training costs; lower labor turnover; less spoilage; reduced accident and insurance rates. **INCREASED** efficiency, larger profits; increased employee satisfaction.

Write for circular: **KEYSTONE VIEW COMPANY**, Meadville, Penna. Established 1892. Originators of Binocular Vision Testing in Industry.

KEYSTONE
Occupational Visual Service



Plenty in Stock — YET!

GC-3 PLAQUE... beautiful two-tone jeweler's bronze etching mounted on a genuine walnut shield. 7 1/2" x 7 1/2" — \$6.50.



1833 SERIES—1 1/2" dia., hard glazed enamel, heavily gold plated pin and safety lock catch. \$9.00 doz. (plus Fed. tax).

Write for Complete Safety Catalog

CLARENCE WILLIAMS
WILLIAMS JEWELRY & MFG. CO.
Silvermiths Bldg., 10 S. Wabash Ave.
Phone CE stral 6-5018 Chicago 3, Ill.

SAFETY STARTS WITH YOU!

NO ADMITTANCE
BE CAREFUL
KEEP THIS PLACARD CLEAR AND OBEY IT

NOTICE
ALL VEHICLES MUST STOP BEFORE ENTERING PLANT

EXPLOSIVES
DANGER
KEEP OUT
NO SMOKING

ACID
DANGER
KEEP OUT
NO SMOKING

LOW BRIDGE
DANGER
KEEP OUT
NO SMOKING

HANDS OFF
DANGER
KEEP OUT
NO SMOKING

WALK IN LANE
DANGER
KEEP OUT
NO SMOKING

THE BEST SAFETY DEVICE IS A CAREFUL MAN

WRITE FOR LATEST CATALOG SHOWING SAFETY SIGNS FOR ALL PURPOSES

STANDARD SIGNS, INC.
3190 E. 65TH ST., CLEVELAND 4, O.

COMING EVENTS

(From page 196)

Apr. 24-25, Fort Wayne, Ind.

Eighth Annual Northeastern Indiana Safety Conference and Exhibit. (Chamber of Commerce Bldg.). Irv Denton, manager, Chamber of Commerce Safety Council, 826 Ewing St., Fort Wayne 2, Ind.

Apr. 25-26, Niagara Falls, N. Y.

Eleventh Annual Western New York Safety Conference. (Hotel Niagara). E. C. Hohlstein, c/o Buffalo Div., Blaw-Knox Co., 1543 Fillmore Ave., Buffalo, N. Y.

Apr. 26, Bridgeport, Conn.

Connecticut Safety Society, Annual Conference. (Hotel Stratfield). Donald H. Ackley, c/o G and O Manufacturing Co., P.O. Box 1860, New Haven, Conn.

May 9, Bethlehem, Pa.

Twenty-fourth Annual Eastern Pennsylvania Safety Conference. Harry C. Woods, executive secretary, Lehigh Valley Safety Council, 602 East Third St., Bethlehem, Pa.

May 10-11, Baltimore, Md.

Maryland Statewide Safety-Health Conference and Exhibits. (Lord Baltimore Hotel). Joseph A. Haller, director of safety, State Industrial Accident Commission, Equitable Bldg., Baltimore 2, Md.

May 14-16, Syracuse, N. Y.

Central New York Safety Conference and Exposition. (Hotel Syracuse). Walter L. Fox, executive secretary, Safety Division, Syracuse Chamber of Commerce, 351 S. Warren St., Syracuse, N. Y.

May 16-18, Winston-Salem, N. C.

Twenty-first Annual North Carolina Statewide Industrial Safety Conference. (Robert E. Lee Hotel.) H. S. Baucom, safety director, North Carolina Industrial Commission, Raleigh, N. C.

May 17-18, Duluth, Minn.

Twenty-seventh Annual Conference Lake Superior Mines Safety Council. (Hotel Duluth). John A. Johnson, chief, Accident Prevention and Health Division, Region V, U. S. Bureau of Mines, 18 Federal Bldg., Duluth 2, Minn.

May 22-24, Grand Rapids, Mich.

Annual Michigan Safety Conference. (Civic Auditorium). Vernon W. Hale, executive secretary, Michigan Safety Conference, 302 Association of Commerce Bldg., Grand Rapids 2, Mich.

May 24-26, Norfolk, Va.

Seventeenth Annual Virginia Statewide Safety Conference. William M. Meyers, executive secretary, Richmond Safety Council, Allison Bldg., Richmond 19, Va.

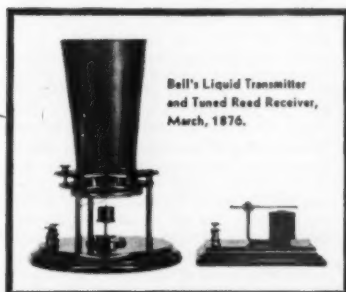
June 4-7, Chicago

Twenty-eighth Annual Midwest Safety Conference. (Congress Hotel). Joseph F. Stech, manager, Greater Chicago Safety Council, 10 N. Clark St., Chicago 2.

—To page 200

75th Anniversary of the Birth of the Telephone

1876 ☆ 1951



Suppose the telephone had never been invented

Have you ever thought what the world and your life would be like without the telephone?

If you wanted to talk to relatives or friends — if you wanted to order from a store — if you needed to summon a doctor or a policeman in an emergency — there would be no way you could do it in a hurry. What now

takes only a few seconds or minutes would often take hours and cost you far more than a telephone call.

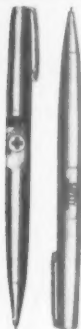
Each year the telephone becomes more useful to the people and more vital to the prosperity and security of the Nation. Today's tremendous job of production and defense could not be carried on without it.

There are twice as many Bell telephones as there were only ten years ago. They are here and ready because the Bell System kept right on building and improving to meet the country's needs.

Never in the history of the telephone has it been so valuable to so many people as right now.

BELL TELEPHONE SYSTEM





For Increased Safety

Our New Pencil award will float your message and help you write a better safety record.

For Increased Security

Our New Patented Plastic Seal Badge solves your Plant Protection Problems—it is absolutely Tamper-Proof. Meets all Government Regulations.



Complete Catalog & Prices on Request

AWARD INCENTIVES, INC.

160 BROADWAY, NEW YORK, N. Y.

Elkay Safety Signals

"The Signs They See"



Elkay Safety Signals meet the demand for a portable, light-weight, sturdy, durable and effective warning safety sign that may be set up or taken down instantly, folding into compact form. Sign snaps off and tripod legs slide along stem closing to a length of 26 inches. Tripod is of 1/2 inch steel rods with rugged malleable iron castings finished in red enamel. Sign plates are of 22 gauge steel in yellow with black letters. Red flags are 15 x 17 inches. Standard wording on signs:

"Danger," "Men Working," "Men Working Above," Etc.

We manufacture 3 and 4 foot automatic types, drive and barricade type signals, made of the same high quality materials. Prompt delivery.

Write for full information.

R. B. OVERTON CO.

3003 E. Grand Blvd., Detroit 2, Mich.

COMING EVENTS

(From page 198)

June 21-23, Salt Lake City

Thirteenth Annual Western States Safety Conference. Clarence Williams, executive director, Utah Safety Council, State Capitol Bldg., Salt Lake City, Utah.

Sept. 6-7, York Harbor, Me.

Twenty-fourth Annual Maine Safety Conference. Arthur F. Minchin, director, Industrial Safety Division, Department of Labor and Industry, Augusta, Me.

Oct. 8-12, Chicago

Thirty-ninth National Safety Congress and Exposition. (Stevens Hotel). R. L. Forney, general secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11.

Training Materials

(From page 198)

Council cover health and off-the-job subjects and are designed specifically for the worker.

The Industrial Supervisor each month provides help for the foreman in meeting his safety and training problems, offering articles and features on technical and human relations subjects, safety talks, how-to-do-it features and the like. Other special publications for foremen include a series of 12 pamphlets on "Safety in Foremanship," six pamphlets on "Psychology of Safety in Supervision," and volumes of suggested five-minute talks for the foreman to use "as is" or as the pattern for his own version of each subject.

For key personnel interested in the broader aspects of the safety program there is the "Accident Prevention Manual for Industrial Operations," a cloth-bound volume of 534 pages, covering the essentials of a complete safety program. Every executive interested in the safety program, of course, should keep abreast of current developments in safety administration through NATIONAL SAFETY NEWS, which brings each month 100 to 200 pages of factual data and stimulating articles on accident problems, health and hygiene, as well as news about people, products and events in the field of safety.

Specific accident prevention problems of different industries are covered in the monthly Sectional News Letters, and numerous other books and pamphlets provide helpful guidance in accident recording and analysis and safety education and promotion. Among these is **Accident Facts**, the annual roundup of accident experience throughout the country, giving summaries, analyses, rates, charts and tables.

Safe Practices Pamphlets and **Health Practices Pamphlets** offer important additions to each safetyman's

library. Covering more than 140 subjects, these pamphlets are detailed studies of operations important to safety supervisors, and they reflect the collective experience of hundreds of member companies.

Industrial Data Sheets offer concise, authoritative discussions on specific safety subjects. They, like the pamphlets, are furnished separately or as full sets in ring binders. **Detail Sheets** offer working drawings for construction of temporary structures or safety devices that any workman can follow.

Special releases include **Accident Facts Memos**, **Engineering Studies** and **Safety Reprints** covering a wide range of subjects.

Mobilizing Womanpower

(From page 6)

smaller frames and lesser muscular strength of women; (4) Provide service facilities in the plant to accommodate the anticipated number of women; (5) Appoint a woman personnel director to organize and head a woman-counselor system; (6) Select women carefully and for specific jobs; (7) Develop a program for the induction and training of women; (8) Establish good working conditions; (9) Supervise women workers intelligently; (10) Give



Safety and Service Emblems

Fewer accidents mean more manpower. Safety Emblems for various lengths of "no lost time" service instill the competitive spirit necessary for employee cooperation.

Service Award Emblems for 1, 3, 5, 10, 25 and 50 years of continued employment increase loyalty and reduce labor turn-over.

Easily seen and readily recognized emblems such as those illustrated above are paying big dividends in many large plants. Also Identification Badges, Plaques, Athletic Medals, Trophies, etc.

Write for new catalog!

METAL ARTS CO., Inc.

Dept. 10, Rochester 5, N. Y.

***"You Build for your own
and your country's future
when you save..."***

BENJAMIN F. FAIRLESS

President, U. S. Steel Corporation



"A free economy, such as ours, is built on the savings of the people. And the future security of America depends on the initiative and the growth of every citizen. We in U. S. Steel encourage our employees to join the Payroll Savings Plan, and we are proud that the National Tube Company, one of our subsidiaries, was the first of the large industrial companies of the nation in 1950 to have more than 80% of its employees participating. Remember, you build for your own and your country's future when you save."

Mr. Fairless is not expressing a personal opinion, nor is he speaking for other far-seeing executives when he tells you that our economy is built on the savings of the people and a man builds for his own and his country's future when he saves.

Actually, Mr. Fairless is merely putting in words the thoughts and action of the millions of employed men and women who now hold more than 50 billion dollars in U.S. Savings Bonds.

\$50,000,000,000! Who sold all those bonds to millions of people? The answer is, nobody sold them.

80% of the employees of the National Tube Company... 75% of the employees of Carnegie-Illinois Steel Company... thousands of employees of other U.S. Steel subsidiaries... more than 8 million employees of other companies

bought U.S. Savings Bonds and are buying them every month on the easy, automatic Payroll Savings Plan. Their employers merely offered these men and women an opportunity to save for their future. There was no pressure, no emotional appeal.

How does employee participation in your Payroll Savings Plan match up with the 80% of National Tube, the 75% of Carnegie-Illinois? Or, perhaps you are one of the relatively few large companies that do not have a Plan? In either case, wire or write, Savings Bond Division, U.S. Treasury Department, Suite 700, Washington Bldg., Washington, D.C. Your State Director is ready to help you with a package plan—application blanks, promotional material, practical suggestions and all the personal assistance you may desire.

The U. S. Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the G. M. Basford Company and

NATIONAL SAFETY COUNCIL



women equal opportunity with men.

Although many persons believe women are inclined to be more careful than men, statistics do not prove whether women are more or less prone to accidents than men. According to the NSC Safe Practices Pamphlet No. 107, **Women in Industry**, only meager data are available on the distribution of accidents by jobs and by sex.

However, it is known that many women in industry suffer disabling injuries and that more women are injured in machinery accidents than in any other way. This may be due in part to the fact that the physical differences in men and women are

not always taken into account when operations are set up and guards are adjusted for the latter. Frequent injuries occur in connection with punch presses, power cutting, and sewing and knitting machines.

When women are placed on machine jobs ordinarily done by men, it is important that adjustments be made at all points of operation. Guards should be set close enough that women's smaller hands cannot enter the openings. Height of benches, distances away from piece parts, and foot pedals or hand controls should be reset to conform to the generally shorter stature and reach of women.

Injuries sometimes result because

the problem of personal protective equipment for women is not given serious study. Women require the same safety features in protective clothing and equipment as men, but greater attention to appearance is important, as many women will resist the use of garments that are unnecessarily ugly. Although this may seem merely a feminine foible, thoughtful safety men have capitalized on vanity as a means of promoting the safety program. Suppliers have recognized this fact and are offering safety clothing and equipment that women do not shun.

Work clothing for women should be comfortable and appropriate to the job and, wherever possible, should be attractive—again for psychological reasons. Suitable dresses, uniforms and smocks are available and, where skirts are a hazard, slacks and coveralls are used. Women's work shoes should conform to standards that apply to men—adequate in weight, comfortable and well-fitting—and should be equipped with safety toes where hazards so indicate. High heels should be discouraged, since women usually are more susceptible to falls than men.

Two hazards peculiar to women are to be considered where moving machinery is involved—the wearing of jewelry, and loose, flowing hair. These are overcome by prescribing the use of hair nets or caps that enclose every wisp, and by establishing a rule that no jewelry can be worn on the job.

Stature and strength of women must be considered when jobs are assigned and work operations are laid out.

Particular attention should be paid to the matter of lifting. Women should be trained in proper lifting methods, just as men workers are, and their limitations must be remembered. The Women's Bureau reports that a gun factory, after thorough tests in an excellent job analysis, set the weight limit at 18 pounds in repeated operations, with a top limit of 35 pounds for occasional lifting.

Many changes in work operations to prevent fatigue for women workers have proved doubly profitable because of increased efficiency. For instance, redesigning job methods to permit sitting in a rubber products plant operation enabled 16 girls to do the work formerly done by 20. An aircraft plant suspended an air-operated wrench, too heavy for a woman to lift, and she found she could then operate two simultaneously, instead of the one handled previously by a man.

Sanitary facilities are important to the morale of women workers. Properly equipped rest rooms, toilets and showers are necessary to their comfort and health, and of course, mirrors must not be overlooked. Women workers usually cooperate in keeping such rooms clean and orderly.

FOR CLEAR *Projection* OF
NATIONAL SAFETY COUNCIL
SOUND SLIDEFILMS



USE THE NEW **DUKANE**
SOUND SLIDEFILM PROJECTORS

FOR BOTH KINDS
OF SLIDEFILM!

AUTOMATIC:

A 30-50 CYCLE INAUDIBLE
SIGNAL ON THE RECORD
AUTOMATICALLY ADVANCES
THE FILM IN COMPLETE
SYNCHRONIZATION WITH
THE RECORD.

and

MANUAL

THE PRESENT TYPE
OPERATES
MANUALLY FROM
AN AUDIBLE
SIGNAL ON THE
RECORD.

- ★ SOUND SLIDEFILM PROJECTOR
- ★ PUBLIC ADDRESS SYSTEM
- ★ 3-SPEED CHANGER



FILL IN • TEAR OFF •
MAIL COUPON NOW!

Send FOR
FREE FOLDER
TODAY!

OPERADIO MFG. CO.,
DEPT. SN 3-1, ST. CHARLES, ILL.

☐ Please send **FREE** Descriptive Folder on large and small
30-50 AUTOMATIC SOUND SLIDEFILM PROJECTORS.

NAME _____

ADDRESS _____

CITY _____

STATE _____



OCCUPATIONAL
SAFETY
SERVICES

★ National Safety Council ★



Occupational Safety Services

This catalog is divided into sections for easy reference;

To help you keep key people supplied with appropriate information. Technical pages and manuals for engineers; news-type publications to keep them informed of safety measures and developments, and to help keep management sold on accident prevention; materials and services for smooth-running safety administration.

To help sell foremen and supervisors on safety. Films for use in foremen safety meetings that show how and what to teach workers; the miniature safety library for supervisors, a take-home magazine on phases of safety particularly interesting to foremen.

Individually tailored to serve specific job interests and problems of each group of employees; technical "know-how" and attitude moulding materials, mass advertising mediums both at a continuous and one-shot nature for every employee.

A complete service for drivers including training booklets, awards to act as interest arousers, and technical information that will keep supervisors up-to-date.

Council publications in other fields of Safety will be sent on request.

Service Guide 2.3
School Safety Services

Service Guide 2.4
Traffic Safety Services

Service Guide 2.5
Farm Safety Services

ALPHABETICAL INDEX

Page N-		Page N-		Page N-	
Accident Analysis Chart	8	For Experts Only	32	Public Safety	33
Accident Facts	4	Green Cross Electros	30	Safe at Home	31
Accident Facts Memos	9	Green Cross Flag	30	Safe Driver	32
Accident Prevention Manual	11	Green Cross Pins	30	Safe Driver Award	32
Accident Rates Pamphlets	5	Happy Vacation	31	Safe 'n' Sound	31
Accident Record Forms—		Health Practices Pamphlets	7	Safe Practices Pamphlets	6-7
Industrial	5	Hold Everything	31	Safe Railroaders	19
Transportation	34	Hotel Accident Prevention Manual	7	Safe Worker	18
Administrative Units	3	Hotel Inspection Check List	7	Safety Bell Ringers	5
American Standard Safety Code		Hospital Safety Service	12	Safety Calendar	18
for Building Construction	12	How to Make the Safety Speech	5	Safety Contest Trophy	30
Aren't People Funny?	18	Human Factors in Safety	15	Safetygraphs	20-21, 34
Broken Glass Cards	19	I Just Gave My Seat to a Lady!	19	Safety in Foremanship	16
Calendar	18	Illustrated Safety Talks	17	Safety Inspection Check List	5
Congress Transactions	12	Industrial Safety and Health		Safety in Quarry Operation	12
Construction Job Manual	12	Bibliography	5	Safety Instruction Cards	30
Crane Boom vs Power Line	19	Industrial Safety Guide	4	Safety Management for Foremen	15
Dash Cards	34	Industrial Supervisor	16	Safetyman's Library	12
Data Sheets	10-11	In the Pink	31	Safety Register	19
Defalcations	22	Jumbo Posters	29	Safety Reprints	9
Defensive Driving	34	Membership Services	13	Safety 'Round the Clock	31
Detail Sheets	8	Member Training Courses	13	Safety Talks for Construction and	
Don't Touch That Wire	19	Motor Transportation Films	34	Maintenance Foremen	17
Driver Letter	32	Motor Transportation Service	32, 35	Section News Letter	4
Driver's Lucky Seven	31	National Fleet Safety Contest	33	Seven Steps to Safety	19
DSS Flags	30	National Safety News	4	Shop Safety	19
Engineering Studies	9	News Letters	4	So Help Me!	19
Experts Don't Skid	34	No-Accident Award Pins	30	Speaking of Safety	14
Films	24-27, 34	Package Programs	12	Speaking Straight—	
Films for Foremen	14-15	Payroll Enclosures	29	Thinking Straight	5
First Aid Reminders	18	Photocopies	23	Special Industries Pamphlets	6
Fleet Safety Manual	32	Poster Electros	29	Special Releases	9
Fleet Safety Memos	34	Poster Frames	29	Transactions of the 38th National	
Foremen's Five Minute		Posters	28-29	Safety Congress	12
Safety Talks	17	Psychology of Safety in		When You Build or Remodel	31
		Supervision	16	Whip Your Weight in Wildcats	31

N-2

NATIONAL SAFETY COUNCIL

425 NORTH MICHIGAN AVE.
CHICAGO 11, ILLINOIS

ADMINISTRATIVE MATERIALS



Keep your key people "on their toes"—safetywise
with ADMINISTRATIVE UNITS

Supply essential safety information

- ✓ to the right people
- ✓ in balanced quantity
- ✓ on the right subjects
- ✓ all the year around

WHAT THEY ARE—An Administrative Unit is a cream-of-the-crop combination of monthly, annual, and special Council materials selected to provide a balanced information service for the key men in your safety program. Each Unit includes copies of know-how publications, such as a safety manual, and subscriptions to news-type publications, such as the NATIONAL SAFETY NEWS and News Letter. When ordered as a Unit, these publications cost at least 10% less than they would if purchased individually.

HOW THEY WORK—The Unit Provides the subscriber with a background of safety information, and keeps him up to date with safety engineering and program developments. The Unit permits member companies to participate in Council Sectional activities. The Unit keeps members informed about new Council services and materials. Unit holders receive all Council Service Guides, announcements, and literature describing new safety aids, as well as samples of many of the new publications.

WHO NEEDS THEM—"A" Units are for full-time safety supervisors. "B" Units are for people with substantial safety responsibility: personnel directors, industrial training supervisors, plant engineers, insurance engineers and inspectors, part-time safety supervisors of plants with 100 to 400 employees. "C" Units are for people with incidental safety responsibility: medical directors, chiefs of plant protection, maintenance foremen, part-time safety supervisors of plants with less than 100 employees. In addition to the eight Units described below, there are many other Units for people interested in various fields of safety. Information on these Units will be sent on request.

HOW TO ORDER—When ordering Units, be sure to specify: name and title of the individual, company name, street address, city, zone, and state, type of Unit desired, choice of sections. You'll find a list of Council sections under "News Letters" on page N-4.

TYPE OF ADMINISTRATIVE UNITS	General	Industrial			Transportation			Con- struction
	AA-1	A-1	B-1	C-1	A-2	B-2	C-2	B-11
Prices (sold to members only)	\$23.00	\$17.50	\$14.00	\$8.50	\$18.00	\$11.00	\$7.00	\$14.00
Services Included:								
1. National Safety News, monthly	1	1	1	1	1	—	—	1
2. Public Safety Magazine, monthly	1	—	—	—	1	1	1	—
3. Sectional Enrollment and monthly News Letter	3	3	2	1	3	2	1	1
4. Industrial Supervisor, monthly	1	1	—	—	—	—	—	1
5. Accident Rates pamphlet, annually	2	1	1	—	1	1	—	1
6. Manuals, as issued								
a. Accident Prevention Manual	1	1	1	—	—	—	—	—
b. Industrial Safety Guide	—	—	—	1	—	—	—	—
c. Fleet Manual, large	1	—	—	—	1	1	—	—
d. Fleet Manual, small	—	—	—	—	—	—	1	—
e. Construction Job Manual	—	—	—	—	—	—	—	1
7. Congress Transactions, annually								
General	1	1	1	1	1	1	1	1
Subject Sessions	1	1	1	1	1	—	—	1
Section Meetings	3	3	2	1	3	2	1	1
8. National Safety Calendar, annually	1	1	1	—	1	1	1	1
9. Accident Facts, annually	1	1	1	—	1	1	—	1
10. Technical releases for your industry, as issued	1	1	1	1	1	1	1	1

ADMINISTRATIVE MATERIALS — continued



NATIONAL SAFETY NEWS

This monthly magazine is the best, single source of up-to-date information on safety engineering and program developments. Each 100 to 200 page issue includes: stimulating, informative articles written by experts in the field; factual data on accident hazards and problems, industrial hygiene and health information; news about people, products, and events; special features such as a monthly

opinion poll on controversial safety issues. By keeping key executives advised as to what other companies are doing about safety, NATIONAL SAFETY NEWS paves the way for engineering and program improvements in your own plant. Give a subscription to each executive who has a voice in determining your safety activities.

INDUSTRIAL SAFETY GUIDE



This newly revised safety manual outlines the minimum essentials of an adequate safety program. Briefly but clearly it discusses the assigning of safety responsibility, making the plant safe, controlling unsafe practices, setting up accident records, creating employee interest in safety.

Because it is simple and compact, it's the perfect safety manual for: your company supervisors—those who should have a broad general background in safety; the people in your plant who have some safety responsibilities, but for whom safety is not a full-time job.

In short, the Industrial Safety Guide is an excellent means of developing a broader knowledge and understanding of safety among the key people in your organization . . . a means of winning stronger, more intelligent support for your safety program. 48 pages, size 6" x 9".

NEWS LETTERS

Monthly publications dealing with accident prevention within given industries. 4 to 6 mimeographed 8½" x 10½" pages. News letters are published for the following Sections:

- Aeronautical Industries
- Air Transport
- Automotive and Machine Shop
- Cement and Quarry
- Chemical
- Coal Mining
- Commercial Vehicle
- Construction
- Electrical Equipment
- Food
- Glass and Ceramics
- Hospital Safety Service
- Industrial Nursing
- Marine
- Meat Packing, Tanning and Leather Products
- Metals
- Mining (other than coal)
- Petroleum
- Power Press and Forging
- Printing and Publishing
- Public Employee
- Public Utilities
- Pulp and Paper
- Railroad
- Rubber
- Textile
- Transit
- Wood Products

ACCIDENT FACTS

The annual roundup of accident figures and facts. Complete statistical summary of the national accident experience, with explanatory tables, charts, and illustrations. Shows average frequency and severity rates, general trend of accidents, no-injury records, etc. About 100 pages, size 6" x 9". Non-member prices same as member.

INDUSTRIAL SAFETY AND HEALTH BIBLIOGRAPHY

A bibliography of industrial safety and health publications, pamphlets and magazines. Indexed with source listings. 70 pages, size 5½" x 8½".

SAFETY BELL RINGERS

Booklet of safety slogans useful for speeches, plant papers, bulletin boards and campaigns. A time-saver for safety men when looking for just the right punch-line. 24 pages, 6" x 9".



SPEAKING STRAIGHT—THINKING STRAIGHT

Four lectures on public speaking given at the 1946 Safety Congress by Dr. Irving J. Lee, Professor, School of Speech, Northwestern University. 24 pages, 5½" x 8½".

HOW TO MAKE THE SAFETY SPEECH

A handy booklet presenting the fundamentals of speech making. Designed to show safety men, supervisors and foremen how to put safety talks across to large and small groups. 64 pages, size 5½" x 8½".

ACCIDENT RATES PAMPHLETS

These pamphlets review the accident experience of about 200 industries and about 30 general groups. The pamphlet for your industry will enable you to compare your company's accident frequency and severity rates with those of other companies doing similar work. Size 5½" x 8½".

LIST OF PAMPHLETS

Automobile
Chemical
Construction
Food (Food, Meat Packing, Tobacco)
Foundry
Iron and Steel Products (Sheet Metal, Misc. Iron and Steel Products)
Leather
Lumber and Woodworking
Machinery and Electrical Equipment
Mining and Quarry
Miscellaneous (Office, Miscellaneous Manufacturing, etc.)
Non-Ferrous Metals and Their Products
Pulp and Paper (Pulp and Paper, Printing and Publishing)
Petroleum
Public Utility (Electric, Gas, Communications, Misc. Utilities)
Rubber
Service (Laundry, Hotel, Mercantile, etc.)
Steel
Stone, Clay and Glass Products
Textile
Transportation (Transit, Air Transport, Marine, and Warehousing and Storage)
Transportation Equipment (Shipbuilding, Air Craft, and Railroad Equipment)

ACCIDENT RECORD FORMS

For use in recording, reporting, and analyzing various types of accidents. Please use both number and name of form when ordering.

IS-1A—Supervisor Accident Report (8½" x 11" 2 sides).
IS-3 —Industrial Employee Injury Record (4" x 6" 1 side card).
IS-4 —Industrial Injury Summary (8½" x 11" 2 sides).
IS-5A—Monthly Summary of Industrial Injuries (8½" x 4" 1 side).
IS-6 —A First Aid report form. In pads of 100. (Size 4" x 6").

ACCIDENT ANALYSIS CHART

For use by small plants, hotels and other service industries to record frequency rates and general accident history of the organization. Size 8½" x 11". 2 sides; in pads of 50.

SAFETY INSPECTION CHECK LIST

A check list of safe and unsafe conditions. Reverse side blank for making detailed comments or recommendations. Size 8½" x 11". In pads of 50.

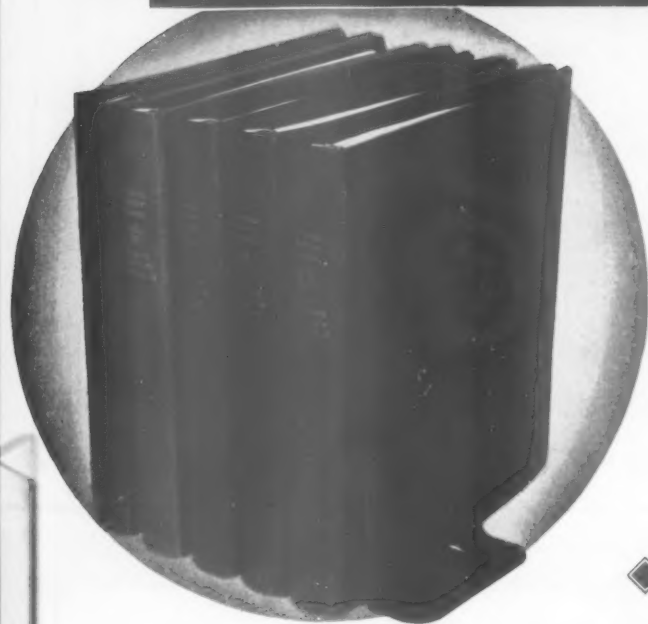
MEMBER PRICES

	1 to 9	10 to 99	100 to 999	1,000 to 4,999*
National Safety News				
Member subscriptions, each	\$5.50	\$5.00	\$4.60	\$4.40
Non-members, each	7.50	6.90	6.50	6.00
(add \$1.00 for foreign, except Canada and Pan American Union)				
Industrial Safety Guide, each	1.15	1.00	1.00	.90
News letters, subscriptions, each	1.15	1.00	.85	.85
Accident Facts, each	.75	.65	.55	.50
Industrial Safety & Health Bibliography, each	.58	.52	.46	.46
Safety Bell Ringers, each	.35	.29	.23	.23
Speaking Straight-Thinking Straight, each	.29	.23	.23	.23
How To Make The Safety Speech, each	.49	.43	.38	.38
Accident Rates Pamphlets, each	.35	.33	.29	.29
Accident Record Forms, each				
IS-1A, IS-3, IS-4, IS-5	.66	.623	.617	.615
IS-6 (pads of 100)	.35	.35	.35	.35
Safety Inspection Check List (pads of 50) each	1.05	1.00	.90	.85
Accident Analysis Chart (pads of 50) each	1.05	1.00	.90	.85

Non-member prices are double member prices, except as otherwise stated.

*Write for prices on quantities of 5,000 or more.

Your **SAFETY LIBRARY** *is not complete without . . .*



Safe Practices

AND

Health Practices

PAMPHLETS

- ◆ listed on these pages were prepared through the cooperative efforts of Council member companies. The practices and procedures contained in the pamphlets reflect the collective experience of hundreds of industrial concerns, the recommendations made are based on methods which have been tested and proved successful.
- ◆ The General Safe Practices Pamphlets and Health Practices Pamphlets are available as a set, in four looseleaf binders. Special Industries Pamphlets must be ordered separately. Separate binders are stocked for those who prefer to make up a partial set of selected pamphlets. Pamphlet size 8½"x11".
- ◆ Numbers omitted in this list have been discontinued, or are out of stock and will not be reprinted until extensive revisions are completed.

PAMPHLETS FOR SPECIAL INDUSTRIES

Au-1 Heat Treating
Au-2 Motor Block Testing
Ce-1 Mercantile Establishments
Cem-1 Cement Rock Quarrying and Crushing
Cem-2 Raw and Finished Cement Mill Grinding
Cem-3 Cement Burning
Cem-4 Cement Mill Shops
Cem-5 Storing, Packing and Shipping Cement
Cem-6 Cement Mill Yards and Railroads
Chem-1 Chemical Pipe Lines and Tanks
Chem-2 Fume Poisoning from Nitric and Mixed Acids
Chem-3 Chemical Burns
Chem-5 Pyroxylin Lacquer Manufacture
Chem-6 Cyanide Compounds

Chem-7 Industrial Waste Disposals and Bibliography on Chemical Wastes
Con-1 Building Construction
Con-3 Excavation Work
Con-4 Pile Driving
Con-5 Demolition of Structures
D-6 Garages and Repair Shops
F-2 Candy, Chocolate and Cocoa Manufacture
F-3 Bakery Operations
F-4 Milk Bottling Plants
F-5 Macaroni Plants
Hy-1 State Highway Employees
M-2 Mine Rescue Work
Mar-2 Marine Boilers
Me-2 Blast Furnaces
Me-4 Rod Mills
Mun-1 Public Employees

PP-2 Paper Box Manufacturing
PP-3 Pulpwood Logging
PT-1 Leather Tanneries
PU-1 Protecting Public Utility Employees on Streets and Highways
PU-3 Linemen's Rubber Protective Equipment
PU-4 Handling of Poles
Ref-1 Ice Delivery
Ref-2 Ice Processing Machines
RR-1 Railroad Track Cars (Hand and Motor)
Ru-1—Part 1 Compounding Materials Used in the Rubber Industry
Ru-2 Vulcanizers and Devulcanizers
T-1 Cotton Mills
Voc-1 Coordinating Safety in Industrial and Vocational Training Programs
W-2 Operating Commercial Lumberyards

GENERAL SAFE PRACTICES PAMPHLETS

1. Ladders
2. Stairs and Ramps
3. Steam Boilers—Operation
4. Overhead Traveling Cranes
6. Fiber Rope
11. Floors and Flooring
12. Scaffolds
13. Grinding Wheels
14. Goggles
15. Elevators
16. Protective Clothing
17. Plant Yards and Grounds
18. Power Presses
19. Exits, Fire Alarms and Fire Drills
20. Woodworking Machinery and Equipment
21. Industrial Accident Records and Analysis
22. Industrial Shop Lighting
23. Gas Welding and Flame Cutting
24. Fire Extinguishment
25. Acids and Caustics
26. Wire Rope
27. Industrial Sanitation (Drinking Water, Wash and Locker Rooms and Toilet Facilities)
29. Electric Equipment in Industrial Plants
31. Industrial Fire Causes and Prevention
32. Exhaust Systems
33. Hoisting Apparatus
34. Industrial Explosion Hazards (Gases, Vapors and Flammable Liquids)
35. Conveyors
36. Fire Brigades
37. Industrial Ventilation
38. Safety Posters and Bulletin Boards
39. Machine Shops
40. Suggestion Systems
41. Hand Tools
42. Organizing a Complete Industrial Safety Program
44. Cutting Oils and Emulsions
45. Industrial Housekeeping
46. Fuel Handling, Storing and Firing
47. Compressed Air Machinery and Equipment
48. Railroads in Industrial Plants
49. Steam Boilers—Construction and Equipment
50. Reducing Fatigue
52. Static Electricity
53. Checking Plans and Specifications for Safety
54. Manual Handling of Materials
55. Industrial Power Trucks and Tractors
59. Warehouses and Shipping Rooms
60. Chemical Laboratories
61. Mechanical Refrigeration
64. Respiratory Protective Equipment
65. Teaching Safety to New Employees
67. Maintaining Interest in Safety
68. Pressure Vessels—Fired and Unfired—Steam Jacketed Vessels, Digesters, Stills, Blow Cases, Autoclaves, etc.
70. Maintenance and Repair Men
71. Chlorine
72. Safety Committees
73. Foundries
74. Safety Contests
75. Safety Inspections
76. Portable Electric Hand Tools
77. Safety Meetings
78. Mathematical Tables and Data for the Safety Engineer
80. Industrial Safety Rules—Their Formulation and Use
84. The Safety Man in Industry
85. Forging and Hot Metal Stamping
87. Safety in the Medium-Sized Plant
88. Identification of Piping Systems
91. Spray Coating
93. Topics for Safety Meetings
95. Compressed Gases
96. Industrial Power Departments
97. Pulverized Coal Systems
98. Use and Care of Hoisting Chains
99. Falls of Workers
100. Safety Stunts—Part I
101. Safety Stunts—Part II
102. Off-the-Job Accidents
103. Purchasing for Safety
104. Dust Explosions
105. Electric Welding
106. Conservation of Personal Protective Equipment
107. Women in Industry
108. Office Safety
109. Safety Observation Plan
110. Mechanical Power Transmission Apparatus
111. Estimating Accident Costs in Industrial Plants

HEALTH PRACTICES PAMPHLETS

3. Lead
4. Industrial Dust
5. Health Service in Industry
7. Carbon Monoxide
8. First Aid Service in Industry
9. Gases and Vapors
10. Skin Affections
11. Nursing Service in Industry
13. Physical Defects
16. Physical Medicine in Industry
17. Back Injuries
18. Lighting and Health
19. Illness in Industry

Hotel Accident Prevention Manual

77 page book prepared for hotel, restaurant, and service industry managers, but valuable for the safety director with plant restaurants and cafeterias. Ideas on controlling special work area hazards in kitchens, restaurants, housekeeping and stewards departments, laundry and engineering departments, upholstery and carpentry shops, and service departments. Size 4 1/2" x 11".

Hotel Inspection Check List

Covers various aspects of facilities, to help determine whether or not safe surroundings are provided for guests and employees. 8 1/2" x 11", 2 sides; in pads of 50.

MEMBER PRICES

	1 to 9	10 to 99	100 to 999	1,000 to 4,999*
Safe Practices Pamphlets, any selection, each	\$.45	\$.40	\$.35	\$.33
Sets (in 4 binders) each	38.00	36.50	36.50	36.50
Single binders, only (1") each	2.50	—	—	—
Set of 4 binders only, each	8.00	—	—	—
Hotel Accident Prevention Manual, each ..	1.25	1.25	1.15	1.15
Hotel Inspection Check List (pads of 50) each	1.85	1.00	.90	.85

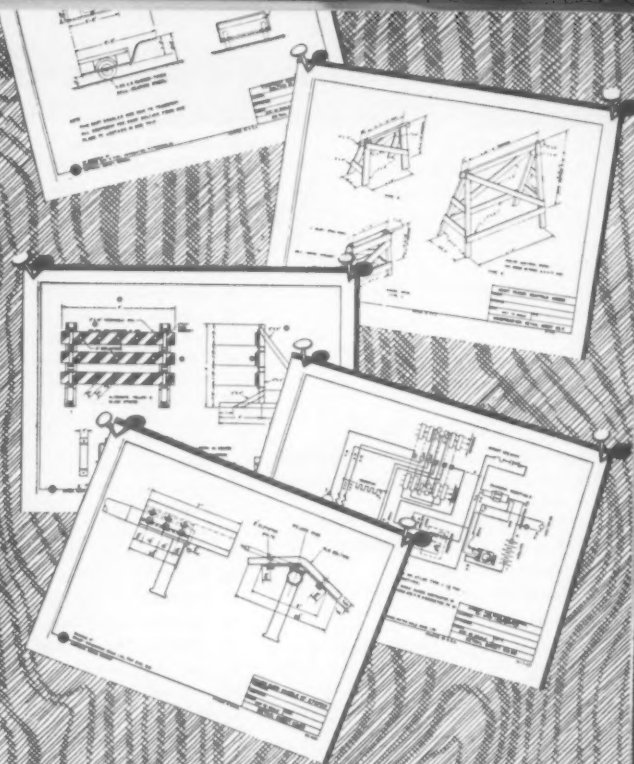
Non-member prices are double member prices.

*Write for prices on quantities of 5,000 or more.

Detail Sheets

A Detail Sheet is a working drawing for the construction of a temporary structure or safety device. It's a simple, clear-cut set of instructions that any competent workman can follow. It's an easy, time-saving method of building equipment that will be safe.

The National Safety Council recommends the use of manufactured equipment and devices, whenever possible. These drawings were developed to control safe construction of the items which will, at times, be built on the job. Size 8 1/2"x11".



LIST OF DETAIL SHEETS

1. Light Trades Scaffold Horses
2. Heavy Trades Scaffold Horses
3. Tire Safety Racks
4. Removable Bench Seats for Pickup Trucks
5. Dump Truck Safety Block
6. Light Duty Independent Pole Scaffold
7. Heavy Duty Independent Pole Scaffold
8. Single Cleat Ladder
9. Double Cleat Ladder
10. Drinking Water Cooler
11. Single Pole Scaffold for Light Duty
12. Single Pole Scaffold for Heavy Duty
14. Removable Plank Seats for Pickup Trucks
15. Plank Seats for Stake Body Trucks
16. Hinged Seat for Pickup or Stake Trucks
17. Infirmary for Construction Projects
18. Portable First-Aid Station
19. Dump Truck Cab Protector
20. Dump Truck Safety Prop
21. Horse Barricades
22. Fence Barricade
23. Roofing Scaffolds
24. Safety Rack for Tools
25. Circular Saw Guard
26. Sidewalk Shed
27. Body Locks for Dump Trucks
28. Portable Magazine
30. Pneumatic Can Opener
31. Welding Screen & Rod Supply Box
32. Adjustable Stand for Barrel Skids
33. Safety Tongs for Handling of High Voltage Cable
34. Rivet Scaffolds
35. Bricklayers' Square Scaffold
37. Welding Screen
38. Welding Table and Safety "V" Block
39. Two Cylinder Welding Truck
40. Single Cylinder Welding Truck
41. Portable Floodlight Tower
51. Broken Glass Disposal Unit
52. Broken Glass Disposal Cans
53. Steam Valve Control
54. Interior Arrangement of Section Tool-house
55. Air Hose Coupling Hooks
56. Power Brake Treadle Stop
57. Pipe Welding Shield
58. Shuttle Guard
59. Dolly for Moving Heavy Machinery
60. Hand Truck Attachment for Handling Dock Plates
61. Strainer for Loading Machine Spraying
62. Roller Tool for Threading Paper Calenders
63. Sidewalk Hatch Cover Brace
64. Chisel Bar Holder
65. Pedestrian Guard Rail
66. Safety Chains for Locomotives
68. Sliding Rail Brake
69. Nip Guard on Cameron Winder
70. Winder Shaft Dolly
71. Bottle Carrier for Corrosive Liquids
72. Lift Truck Safety Rack
73. Safety Handle for Operating Switches, etc.
74. Emergency Stop for Belt Conveyor
75. Portable Work Stand
76. Pit Guard
77. Safety Devices at Pinch Points on Power Driven Conveyors
78. Paper Roll Skinners
79. Glass Shield for Test Stands
80. Circuit for Dead Man Control on Mine Locomotives
81. Details & Assembly of the Solenoid chute
82. Chute Platforms and Car Stop
83. Mine Car Dumping & Chute Bar
84. Hatch Cover Fastener for Bulk Cars
85. Shift Bar Safety Lock
86. Mobile Stretcher
87. Safety Levers on Carton Punching Press
88. Smoking Booth
89. Two Winder Guards
90. Overhead Guard for Fork Lift Truck
91. Testing Relief Valves
92. Reel Guard on Felt or Paper Machine
93. Cover over Handle of Stoper
94. Handle for Stoper
96. Fire Hose Holder
97. Nail Keg Band Crimper
98. Impact Test for Heat Treated Lens
99. Plant Railroad Crossing Gate
100. Winder Guard
101. Guard for Band Saw Point of Operation
103. Jointer Guard
104. Mist Projector
105. Method of Suspending Canvas from Plates in Roof Bolting in Mines
106. Wire Hanger for Roof Bolting Sections in Mines
107. Hand Guard for Short Stoper in Mines
108. Pipe Support for Roof Sections in Mines
109. Equipment Cart for Roof Bolting
110. Hookup of Main Line Switch Signals
111. Foundation for Stacking Lumber
113. Seat on Mine Car for Brakemen
114. Jumbo Poster Billboard
115. Jumbo Poster Billboard
116. Sheave Grinding Arrangement
117. Cylinder Head Lifter - Horizontal Engine

Special Releases

The various special releases of Accident Facts Memos, Engineering Studies, and Safety Reprints are listed below. When ordering, please give full number and title of the releases desired. Size 8 1/2 x 11. Prices vary with number of pages.

ACCIDENT FACTS MEMOS

- General 1—Ladder Accidents. 2 pages.
- General 2—Power Saw Accidents. 2 pages.
- General 3—Hammer Accidents. 2 pages.
- General 4—Belt and Pulley Accidents. 2 pages.
- General 5—Hoisting Operations. 4 pages.
- General 6—Grinding Wheel Accidents. 4 pages.
- General 7—Stairway Accidents. 4 pages.
- General 8—Metal-Working Lathe Accidents. 4 pages.
- General 9—Wrench Accidents. 4 pages.
- General 10—Handling Materials and Objects. 4 pages.
- General 11—Scaffold Accidents. 4 pages.

ENGINEERING STUDIES

- Coal Mining 1—Underground Haulage Fatalities in Coal Mines. 18 pages.
- Mining 1—An Analysis of 100 Fatal Accidents in the Use of Explosives. 6 pages.
- Mining 2—Fatal Haulage Accidents. 4 pages.
- Mining 3—Fatal Accidents from Runs of Ore or Fill. 4 pages.
- Mining 4—Reflectorized Signs for Mines. 2 pages.
- Mining 5—An Analysis of 100 Fatal Shaft and Hoisting Accidents. 8 pages.
- Pulp and Paper No. 1—Cutting Tails on Back Side of Calendar Stack. 4 pages.
- Pulp and Paper No. 4—Skid Carrier Chain Breakage. 8 pages.
- Pulp and Paper No. 5—Shipping Felt Rolls in Railroad Cars. 4 pages.
- Pulp and Paper No. 6—Hauling Pulpwood with Horses. 4 pages.

MEMBER PRICES	1 to 9	10 to 99	100 to 999	1,000 to 4,999*
Detail Sheets, any selection, each	\$.12	\$.09	\$.08	\$.07
Current Set, including binder, each	10.20	9.50	9.00	9.00
Special Releases				
1 to 4 pages .....	.17	.13	.08	.07
6 pages .....	.23	.18	.14	.10
8 pages .....	.29	.24	.18	.14
10 pages .....	.35	.29	.24	.17
12 pages .....	.40	.33	.28	.21
16 pages .....	.52	.40	.35	.29
18 pages .....	.58	.46	.40	.35

Non-member prices are double member prices.
*Write for prices on quantities of 5,000 or more.

SAFETY REPRINTS

GENERAL

- General 1—We Fix Responsibilities. 4 pages.
- General 2—How Industry Protects the Worker's eyes. 8 pages.
- General 3—Emergency Nursing Care of the Eyes in Industry. 4 pages.
- General 4—Scientific Facts Concerning Electrical Hazards. 4 pages.
- General 5—Health Aspects of Welding. 4 pages.
- General 6—Lightning and How to Dodge It. 2 pages.
- General 7—Aluminum and other Metal Ladders. 2 pages.
- General 8—Silica-Bearing Dusts. 8 pages.
- General 10—Try Color. 4 pages.
- General 11—Oil Absorbents. 2 pages.
- General 12—The Art of Handling Patients. 2 pages.
- General 13—Counting the Savings. 2 pages.
- General 14—Death on the Roof Top. 2 pages.
- General 15—Starting a Two-Cycle Engine. 2 pages.

CHEMICAL

- Chem. 1—Public Relations Aspects of Industrial Wastes. 4 pages.

COAL MINING

- SRCM 1—What Should a Mine Safety Inspector Look For? 6 Pages.
- SRCM 3—What Do We Actually Know About Roof Testing? 4 pages.
- SRCM 5—The Necessity of Active Participation of Management in Safety Work. 2 pages.
- SRCM 6—Methods of Stimulating Interest in Safety Work—Safety Incentives. 2 pages.
- SRCM 8—A New Plan for Rating Section Foremen. 4 pages.
- SRCM 10—Maintaining Rock Dusting and Other Disaster Preventive Measures in Multiple Shift Operations. 2 pages.
- SRCM 11—Ventilation Methods and Installations. 4 pages.
- SRCM 12—Training Personnel in the Problems of Mechanical Mining. 4 pages.
- SRCM 13—Seat for Helper on Cutting Machine. 1 page.
- SRCM 14—Air Sample Bottle. 1 page.

CONSTRUCTION

- EST 1—Prevention of Accidents in Use of Bulldozers. 4 pages.
- EST 2—Wrecking and Demolition. 2 pages.
- EST 3—Safe Working Heights for Earth Embankments. 12 pages.
- EST 4—Organizing a Steel Erection Job for Safety. 2 pages.
- EST 5—Steel Sinews. 4 pages.
- EST 6—Pre-Employment Examination of Construction Workers. 4 pages.
- EST 7—The Measurement and Prevention of Eye Flash. 2 pages.
- EST 8—The Safe Handling and Placing of Concrete. 2 pages.
- EST 9—Keeping Your Construction Equipment Safe. 10 pages.
- EST 10—Safe Use of Heavy Duty Equipment in Construction Jobs. 8 pages.
- EST 11—The Highway Engineer Is a Safety Man. 4 pages.

FOOD

- Food 1—Fumigating Facts. 2 pages.

GLASS AND CERAMICS

- Glass and Ceramics 1—Hazards of Glass Forming Machines. 1 page.

MINING

- Mining 1—Hoisting Rope Research in Ontario Mines. 16 pages.
- Mining 2—Grounding Electrical Equipment at Open Pit Iron Mines. 4 pages.
- Mining 3—Methods of Cementing Diamond Drill Holes and Construction of Underground Air Receivers. 8 pages.
- Mining 5—Carbon Monoxide from Blasting Underground. 16 pages.
- Mining 6—Electric Blasting in Sinking Shafts. 4 pages.
- Mining 7—Earthing System for Headgears. 2 pages.

PUBLIC UTILITY

- SRPU 1—Plan a Safe Job at the Tailboard. 2 pages.

PULP & PAPER

- Pulp & Paper 1—Fire Prevention on Pulpwood Logging Operations. 4 pages.

RUBBER

- Rubber 1—Medical Problems Encountered in the Manufacture of American-Made Rubber. 8 pages.

TEXTILE

- Textile 1—Card Fires—How to Prevent Them. 2 pages.

ADMINISTRATIVE MATERIALS — continued

Data Sheets



Each is a concise, authoritative discussion on one specific safety subject. Size 8 1/2"x11", one to four pages. A Current Set, complete in two 3-ring loose-leaf binders, is available. Binders are divided A-I, M-Z. The arrangement is alphabetical by major subject interest as shown in the List. Individual Data Sheets may be ordered from the list below. Additions are constantly being made to the list. A new Data Sheet appears in every issue of the NATIONAL SAFETY NEWS. Data Sheets revised since first printing show revision dates after the titles.

LIST OF DATA SHEETS

Acetic Acid	D-Chem. 29
Acetone	D-Chem. 23
Acid, Removing from Carboys	D-Chem. 9
(rev. 11-39)	
Air Compressors and Receivers, Cleaning	D-Me. 14
Airplanes, Electrical Grounding of	D-A. 1
Aniline	D-Chem. 24
Antimony and Its Compounds	D-Chem. 22
Arsenic and Its Compounds	D-Chem. 13
Asphalt	D-Chem. 30
Atmospheric Conditions in Underground Structures	D-Pu. 5
Automotive Equipment Operators on Airport Ramps	D-A. 2
Auxiliaries, see Slashers	
Babbitt Bearings	D-Me. 24
Barrels, Tumbling	D-Gen. 18
Barricades & Warning Devices for Highway Construction Work	D-Coa. 6
Benzene (Benzol)	D-Chem. 47
Blasting, Electric Power Circuits	D-Min. 10
Blasting, Stray Currents in Electric	D-Min. 2
Bleaching Compounds, Textile	D-T. 1
Blow Torches and Plumbers' Furnaces, Gasoline	D-Gen. 6
Boring Machines, Wood and Hollow Chisel Mortisers	D-W. 6
Boring Mills, Horizontal Metal	D-Me. 6
Boring Mills, Vertical Metal	D-Me. 8
Bottles and Broken Glass	D-F. 2
Bridge Painting	D-RR. 2
Bramine	D-Chem. 21
Buildings, Cleaning Exterior Walls of	D-Gen. 12
Bulldozers, see Motor Graders	
Cadmium	D-Chem. 42
Calendar Rolls, Handling	D-PP. 2
(rev. 4-49)	
Capacitors	D-Pu. 3
Carbon Bisulphide (Carbon Disulphide)	D-Chem. 1
Carbon Tetrachloride	D-Chem. 25
(rev. 10-44)	
Cards, Cotton	D-T. 3
Cards, Wool and Worsted	D-T. 5
Caustic Soda, Handling	D-Chem. 2
Chlorates (rev. 7-45)	D-Chem. 8
Chloro-Waxes, see Waxes, Electrical Insulating	

Cleaning with Hot Water and Steam.....D-Gen. 33
Cores, Cutting Paper.....D-PP. 9
Cores, see Shafts
Cotton Slashers and Auxiliaries, see Slashers
Cresols.....D-Chem. 36
Cutting and Loading Machines, Coal Mines.....D-Min. 9
DDT Insecticides, Use of.....D-F. 3
Die-Casting Machines.....D-Me. 21
Die Guards, Individual, and Adjustable Press Barriers.....D-Me. 27
Digesters, Pulp Mill.....D-PP. 10
Dock Plates and Gangplanks.....D-Gen. 35
Draglines, see Power Shovels
Drill Presses, Metal Working.....D-Me. 4
Drilling in Mines.....D-Min. 7
Drinking Water on Construction Jobs.....D-Con. 3
Drop Hammers and Drop Forges.....D-Me. 10
Drums, Cleaning, which have held Flammable Substances (rev. 1-43).....D-Chem. 10
Dry Ice (Solid Carbon Dioxide) (rev. 2-40).....D-Chem. 11
Electric Extension Cords.....D-Gen. 21
Electric Equipment, Portable, Grounding.....D-Gen. 42
Electric Motors, see Machinery
Electrical Equipment, Grounding in Coal Mines.....D-Min. 1
Engine Operation, Stationary Gasoline.....D-Gen. 11
Ethyl Ether (rev. 7-46).....D-Chem. 7
Ethylene Dichloride.....D-Chem. 41
Ferroallic.....D-Chem. 20
Fire-Retardant Treatment for Fabrics.....D-T. 2
Fire-Retardant Treatment for Wood.....D-Gen. 20
Firearms for Plant Protection.....D-Gen. 27
First Aid Facilities, Coal Mines.....D-Min. 6
Floors, Slippery (rev. 4-41).....D-Gen. 1
Fluorescent, see lamps
Formaldehyde.....D-Chem. 15
Freight-Car Doors.....D-RR. 5
Fulminate of Mercury.....D-Chem. 40
Fuses, Storage and Handling of Fuses and Torpedoes.....D-RR. 7
Gangplanks, see Dock Plates
Gantry Trucks.....D-Gen. 24
Gear Hobbing Machines.....D-Me. 23
Goggles and Respiratory Equipment, Cleaning and Sterilizing.....D-Gen. 16
Guillotine Cutters.....D-PP. 3
Heat Cramps (And Use of Salt).....D-Gen. 15
Highways and Municipal and Industrial Plant Roadways, Center Striping of.....D-Con. 8
Hot Line Tools.....D-FU. 2
Hydro-Extractors.....D-Gen. 9
Hydrogen Sulphide.....D-Chem. 16
Jackhammers in Quarries.....D-C. & Q. 1
Jointers, Wood.....D-W. 4
Knives, Hand.....D-Gen. 30

Ladings, Thawing Frozen.....D-RR. 6
Lamps, Fluorescent, Disposal of.....D-Gen. 36
Lathes, Engine.....D-Me. 13
Lathes, Wood Turning.....D-W. 9
Lime.....D-Chem. 19
Locomotive Appurtenances, Handling.....D-RR. 4
Looms, Cotton.....D-T. 6
Lubricants, Underground Storage in Coal Mines.....D-Min. 5
Luminescent Materials, see Reflecting
Machinery and Electric Motors, Cleaning.....D-Gen. 37
Man Lifts (rev. 12-43).....D-Gen. 2
Manganese (rev. 2-43).....D-Chem. 26
Mercury (rev. 1-47).....D-Chem. 17
Metal Parts, Removing Oil and Grease from (rev. 7-49).....D-Gen. 13
Metallic Sodium.....D-Chem. 37
Metalizing.....D-Me. 29
Methanol.....D-Chem. 18
Milling Machines, Metalworking.....D-Me. 3
Mixers and Pavers, Concrete.....D-Con. 7
Motor Graders, Bulldozers and Scrapers (rev. 11-47).....D-Con. 1
Naphthalene (Crude and Refined).....D-Chem. 34
Oxalic Acid.....D-Chem. 14
Paper Bags, Manufacturing Standard.....D-PP. 6
Perchloric Acid.....D-Chem. 44
Phenol (rev. 9-47).....D-Chem. 3
Phosphorus (White).....D-Chem. 39
Pickers, Cotton.....D-T. 4
Pickers, Wool.....D-T. 7
Picric Acid.....D-Chem. 28
Piping in Pulp Mills, see Pressure Vessels
Planers, Metal.....D-Me. 2
Planers, Wood, Power Feed.....D-W. 8
Plant Parking and Public Loading Points.....D-Gen. 28
Plumbers' Furnaces, see Blow Torches
Poison Ivy, Poison Oak and Poison Sumac.....D-Gen. 17
Poles, Setting or Removing, in or near Energized High Voltage Conductors.....D-Fu. 4
Pole-Tape Resuscitation.....D-Fu. 1
Power Press Dies, Setting Up and Removing.....D-Me. 16
Power Press Maintenance.....D-Me. 18
Power Shovels, Draglines and Similar Equipment, Operation of.....D-Gen. 25
Press Barriers, see Die Guards
Press Brakes.....D-Me. 28
Presses, Baling.....D-PP. 7
Presses, Kick-Type.....D-Me. 19
Pressure Vessels, Unfired, and Piping in Pulp Mills.....D-PP. 11
Pulpwood, Unloading at the Mill.....D-PP. 4
Punch Presses, Handling Finished Pieces at.....D-Me. 25
Punch Presses, Scrap Handling.....D-Me. 22
Pyridine.....D-Chem. 46
Railroad Car Wheels, Changing Out.....D-RR. 3
Reels, Drum Type.....D-PP. 1
Reflecting and Luminescent Materials.....D-Gen. 39

Respiratory Equipment, see Goggles
Roadways, Center Striping, see Highways
Rock, Felling or Sliding in Quarries.....D-C. & Q. 2
Rock or Ore, Detecting Loose.....D-Min. 3
Rock, Testing, Removing and Supporting Loose.....D-Min. 4
Rope Drop Hammers.....D-Me. 17
Rope, Manila, Safe Loads for Slings.....D-Gen. 3
Rope, Sisal.....D-Gen. 23
Rope, Wire, Safe Loads for Slings.....D-Gen. 7
Rubber Cement, Spreading.....D-Ru. 1
Salamanders.....D-Con. 4
Sanders, Wood.....D-W. 7
Saw Guards, Circular, Cross-Cut.....D-W. 2
Saw Guards, Circular, Rip.....D-W. 1
Saws, Band Woodworking.....D-W. 5
Saws, Metal (Cold).....D-Me. 11
Saws, Power Chain in Logging.....D-W. 12
Saws, Overhead Swing Cut-Off.....D-W. 11
Scrapers, see Motor Graders
Selective Placement.....D-Gen. 29
Shafts and Cores, Handling.....D-PP. 8
Shapers, Metal.....D-Me. 5
Shapers, Wood.....D-W. 3
Shears, Alligator.....D-Me. 20
Shears, Cloth.....D-T. 9
Shears, Metal Squaring (rev. 2-47).....D-Me. 9
Shuttle Car Operation.....D-Min. 8
Sidewalk Sheds.....D-Con. 5
Skids.....D-Gen. 40
Skull Crackers (Yard Drops).....D-Me. 1
Slashers and Auxiliaries, Cotton.....D-T. 8
Slotters, Metal.....D-Me. 7
Snakes, Poisonous, of the United States.....D-Gen. 19
Spiders, Black Widow (rev. 7-47).....D-Gen. 8
Steel Strapping, see Strapping
Stickers, Molders and Matchers, Wood.....D-W. 10
Strapping, Steel, Flat or Round.....D-Gen. 38
Sulfur, Handling and Storage of.....D-PP. 5
Switches, Electric, Method of Locking Out.....D-Gen. 41
Tetryl.....D-Chem. 43
Tick Bites (rev. 5-48).....D-RR. 1
Tire and Tube Curing.....D-Ru. 2
Toluene and Xylene.....D-Chem. 35
Tools, Flexible Shaft.....D-Me. 26
Tools, Impact, Safe Ending.....D-Gen. 31
Tools, Powder-Actuated, Hand.....D-Gen. 34
Tools, Pulpwood and Log Handling.....D-PP. 12
Torpedoes, see Fuses
Trench Excavation (rev. 5-44).....D-Con. 2
Trichloroethylene (rev. 6-48).....D-Chem. 27
Trinitrotoluene (rev. 8-43).....D-Chem. 38
Trucks for Mines, Quarries and Construction, Motor.....D-Gen. 26
Turpentine.....D-Chem. 12
Watchman Safety.....D-Gen. 32
Waxes, Electrical Insulating.....D-Chem. 31
Zinc and Zinc Oxide.....D-Me. 12
Zirconium.....D-Chem. 45

ACCIDENT PREVENTION MANUAL FOR INDUSTRIAL OPERATIONS

The encyclopedia of safety—534 pages and 400 illustrations showing exactly how to run a safety program that will step up production and increase profits. This manual should be in the library of every safety director, training supervisor, engineering and development department, and separate plant employing 100 or more workers. Handsomely bound, size 6" x 9". Because of limited stock, supply is temporarily reserved for new members, Administrative Unit and Safetyman's Library purchasers.

MEMBER PRICES

	1 to 9	10 to 99	100 to 999	1,000 to 4,999*
Date Sheets, any selection, each.....	\$.17	\$.13	\$.08	\$.07
Current Set, including binders, each.....	19.50	18.90	17.50	17.50
Binders only (1½").....	3.00	3.00	3.00	3.00
Accident Prevention Manual, each.....	9.40	8.80	8.20	8.20

Non-member prices are double member prices.

*Write for prices on quantities of 5,000 or more.

ADMINISTRATIVE MATERIALS — continued

CONSTRUCTION JOB MANUAL

A manual designed for job superintendents that combines plans for safety and efficiency under one cover. The manual includes ten Safe Practices Pamphlets on construction subjects, twenty-five Construction Detail Sheets, seven Industrial Data Sheets, fifteen miscellaneous job forms, twenty-four pages of text, and eight pages of plans in leather binder. Page size 8½" x 11".

SAFETY IN QUARRY OPERATIONS

This 46-page manual presents safety rules and regulations covering both the equipment and the work methods used in quarries. Electrical equipment, explosives, material storage, drilling, welding and fire prevention are a few of the subjects discussed. Size 6" x 9".

HOSPITAL SAFETY SERVICE

A monthly packet of hospital safety materials, including posters, instructional materials for personnel training and information for administrators. Non-member price same as member.

AMERICAN STANDARD SAFETY CODE FOR BUILDING CONSTRUCTION

Sponsored by American Institute of Architects and National Safety Council, and approved by the American Standards Association. 86 pages; 7½" x 10½". (Non-members write for prices.)

PACKAGE PROGRAMS

Council engineers will prepare plans for an intensive, short-term campaign covering any specific subject requiring safety instruction for employees. Samples of materials to be used and suggestions on how to use them will be included.

TRANSACTIONS OF THE NATIONAL SAFETY CONGRESS AND EXPOSITION

The National Safety Congress is the biggest annual event in safety—a week of talks and panel discussions by leading safety authorities. These are recorded in separate volumes to permit wide distribution of pertinent volumes within an organization. Prices vary with number of pages. See back of any volume, or write the Council. Size 6" x 9".

© LIST OF VOLUMES

General Sessions and Detailed Index to all Volumes
Aeronautical Industries
Air Transport Industry
Automotive and Machine Shop Industries
Cement and Quarry Industries
Chemical Industries
Coal Mining Industry
Construction Industry
Electrical Equipment Industry
Farm Safety
Food Industry
Glass and Ceramics Industry
Home Safety
Industrial Nursing
Industrial Subject Sessions (Sponsored by ASSE)
Maritime Industries (Marine Section)
Meat Packing, Tanning and Leather Industries
Metals Industry
Mining Industry
Motor Transportation Industry (Commercial Vehicle Section)
Petroleum Industry
Power Press and Forging Operations
Printing and Publishing Industry
Public Employment (Public Employee Section)
Public Utilities Industries
Pulp and Paper Industry
Railroad Industry
Rubber Industry
School and College Safety
Textile Industry
Traffic Safety
Transit Industry
Wood Products Industries
Early Morning Sessions

MEMBER PRICES

	1 to 9	10 to 99	100 to 999	1,000 to 4,999*
Construction Job Manual, each.....	\$13.20	\$12.60	\$12.00	\$11.40
Safety in Quarry Operations, each....	.52	.46	.40	.40
American Standard Safety Code for Building Construction, each....	1.15	1.15	1.15	1.15
Hospital Safety Services, subscriptions, each	5.00	—	—	—
Transactions, sets, each	6.00	5.50	5.00	5.00
Member Training Course, Basic.....	60.00	—	—	—
Advanced.....	70.00	—	—	—

Non-member prices are double member prices, except as otherwise stated.

*Write for prices on quantities of 5,000 or more.

SAFETYMAN'S LIBRARY

Here is a safety library of the Council's most frequently needed reference publications. It includes: the 534 page Accident Prevention Manual; a set of Safe Practices and Health Practices Pamphlets in 4 binders; a set of 175 Industrial Data Sheets; a set of 100 Detail Sheets; a file set of 690 Safety Instruction Cards. This Safetyman's Library may be had for \$80.00—10% less than the total cost of the items included. (Non-member price is double.)



MEMBERSHIP SERVICES



CONSULTATION SERVICE

The Council's staff of engineers, safety technicians and industrial hygienists are at your command. They are equipped to give you unlimited assistance in planning and running a successful safety program.



LIBRARY SERVICE

The world's biggest collection of safety information—thousands of publications, articles, photographs, illustrations on every conceivable safety subject—is yours to use. Material on any subject will be mailed to you on request.



NATIONAL SAFETY CONGRESS

The biggest annual event in safety—a week of talks and discussions by the country's leading safety authorities—exhibits of safety equipment. It is held in Chicago during October. You can send any number of representatives to learn about the latest safety developments and to meet and exchange ideas with safety men in your industry.



EMPLOYEE PUBLICATIONS SERVICE

The Council will keep you supplied with safety publicity material for plant magazines, newspapers and bulletins. Mats and proofs of safety cartoons, a clip sheet and a monthly Newsletter containing safety news items of general interest are yours for the asking.



PERSONNEL BUREAU

The Council maintains a confidential file of safety men who are interested in changing jobs. If you need a safety director or en-



gineer, the Council can help you find the right man for the job.

SECTIONAL ACTIVITIES

Part of your dues covers the costs involved in developing safety codes and safe operating procedures for your industry and other technical studies, and in running intra-industry contests. These 13 Sections sponsor yearly contests: Aeronautical Industries, Chemical, Commercial Vehicle, Foods, Marine, Metal, Pulp and Paper, Petroleum, Printing & Publishing, Public Utilities, Rubber, Textile, and Transit. Any member may compete. The only requirement is a simple monthly report. Entrants compete only with companies of their own size which have similar operations. Each month you receive a report of your standing. If you win, there's a handsome trophy that's yours to keep. The Council will send you contest posters, report forms, and the contest rules upon request.

STATISTICAL SERVICE

The information maintained on accident frequency and severity in 200 industries permits you to check your standing and the progress of your program against the records of other companies doing similar work. Charts and tables are prepared on unsafe acts, agencies of injury and unsafe conditions that lead to accidents.

SPEAKERS BUREAU

A file of both volunteer and professional speakers is maintained to place you in contact with persons qualified to give safety talks to various types of audiences.

MEMBER TRAINING COURSES

At least five times yearly, the Council conducts a course in the fundamentals of industrial safety. There are certain things every safety man must know in order to prevent accidents. He must know how to organize a safety program, what records to keep and how to use them, how to make the plant safe, etc. These are some of the fundamentals taught in the Basic Safety Training Course. (Service Guide 1.6 lists the subjects.)

Obviously, no one can learn in one week all there is to know about running a safety program. The main purpose of the course is to provide a solid foundation of safety knowledge. Then, to supple-

ment the information presented in the course, each person is given a kit of reference materials that may be used for follow-up study.

There are no educational requirements, no experience requirements. Anyone who works for a Council member may take the course. The tuition is \$60, including the cost of the reference materials given to each participant.

ALSO AN ADVANCED COURSE

It is open to persons who have completed the Basic Course and includes: technical writing, public speaking, psychology in safety, visual aids, etc. Write the Council's Training Director for further details.

SUPERVISOR TRAINING

WIN and KEEP the support of your SUPERVISORS

Your foremen are key men in your safety program. They give whatever on-the-job instructions your workers receive. They must enforce your safety rules. They distribute your safety literature. It's up to your foremen to see that machine guards are in place . . . that your workers are wearing necessary protective equipment. In short, your foremen can make or break your safety program.

That's why—ever since the beginning of industrial safety work—so much emphasis has been placed on safety training for foremen. And that's why the Council has produced these special foremen safety materials.

These materials have two important functions:

1. They help you teach your foremen the fundamentals of accident prevention—particularly as it relates to their jobs.
2. They stimulate your foremen's interest in safety—by showing them how safety increases production and improves worker morale.

The net result is the wholehearted cooperation of your foremen in making your safety program a success.



SPEAKING OF SAFETY

A brand new set of films that do a big job for you. They will teach your foremen and supervisors the tips they should know about making talks, and how to transmit management's ideas and plans to the worker. This set of films was prepared by Dr. Irving J. Lee, Professor of Public Speaking, School of Speech, Northwestern University.

The set consists of six 35mm sound slidefilms and leaders manual in an attractive leatherette case. The 16-inch records are pressed for automatic advancement on one side, and for manual advancement on the other side. Running time of each film is approximately 13 minutes. Individual films are available for purchase only.

THE POWER OF SPEECH is an introduction to the film set. It lists occasions when foremen might be called upon to make a speech, explains the differences between formal and working speeches and the purpose of a speech. (Class I Film) (LM)

BUTTERFLIES IN YOUR STOMACH explains stage fright and shows how to overcome it. (Class I Film) (LM)

THE KEY TO GOOD SPEAKING outlines four methods of preparing a speech and gives step-by-step description of how to prepare a typical safety speech. (Class I Film) (LM)

ON YOUR FEET explains how to stand when you get up to talk,

the purpose of moving and how to do it effectively, where to look and what to do with your hands. (Class I Film) (LM)

NOW YOU'RE TALKING discusses the actual speech making; how to talk, vocabulary, phrasing of ideas, attitude; and how friendliness, sincerity and enthusiasm can make your speech a success. (Class I Film) (LM)

RING THE BELL shows how to "break the ice" and hold the audience's attention; the value of demonstrations, films, pictures, charts and graphs; how to illustrate a point with a personal experience, comparisons or a humorous story. (Class I Film) (LM)



HUMAN FACTORS IN SAFETY

Human Factors in Safety is a series of six 35mm sound slidefilms with Leader's Manuals that may be used for an advanced safety course. Each film deals with one aspect of the complex art of handling people. Collectively, the films show how to train new workers, how to keep experienced workers on their toes, and how to win respect, cooperation and loyal support.

THE SECRET OF SUPERVISION sets the stage for other films in the series. In story form, it shows why people will work hard for some supervisors, yet rebel against others. (Class I Film) (LM)

TEACHING SAFETY ON THE JOB shows supervisors how to prepare and give job safety instructions. The four steps of good job training illustrated are: 1. Preparation; 2. Presentation; 3. Application; 4. Testing. (Class I Film) (LM)

PEOPLE ARE ALL ALIKE explains that all normal people have certain basic, human wants. The film shows how supervisors can satisfy these wants—and by so doing, get their men to work WITH them. (Class I Film) (LM)

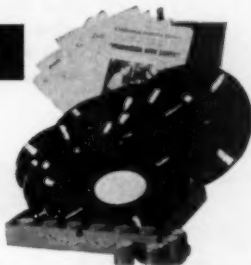
PEOPLE ARE DIFFERENT shows supervisors how to make allowances for individual differences—how to handle the tough guy, the show-off, the loud-mouth, the day-dreamer, and the practical joker. (Class I Film) (LM)

TEAMWORK FOR SAFETY suggests ways for supervisors to make safety interesting. Holding meetings, encouraging worker suggestions, using safety literature . . . are some of the techniques discussed. (Class I Film) (LM)

SAFETY CASE HISTORIES is a study of actual accidents that were caused by "human factors." After each case is presented, the film is stopped so the audience can discuss the accident causes, and remedies. (Class III Film) (LM)

SAFETY MANAGEMENT FOR FOREMEN

Safety Management for Foremen consists of ten 35mm sound slidefilms with Leader's Manual—everything needed for a course in safety fundamentals. The films explain how to organize a safety program, what part the foreman plays in the program and how safety increases production. They also discuss specific safety activities such as machine guarding, safety inspections, the first aid program, etc.



FOLLOW THE LEADER gives a step-by-step description of how to organize a safety program. Ten components of a good program are discussed. (Class II Film) (LM)

CAUSE AND CURE shows how to analyze an accident to determine its basic causes. Ten unsafe acts and eight unsafe conditions are illustrated. (Class II Film) (LM)

GUARD DUTY pictures effective guards for common power machines, and points out that it's up to foremen to see that these guards are kept in place. (Class II Film) (LM)

SAFETY IS IN ORDER is all about good housekeeping, from the foreman's angle. It shows how good order saves space, time, and material. (Class II Film) (LM)

RIGHT DRESS pictures common types of personal protective equipment, and explains on what jobs each type should be used. (Class II Film) (LM)

DOCTOR'S ORDERS discusses the importance of regular physical examinations, prompt first aid treatment, and reports on all first aid cases. (Class II Film) (LM)

BRAIN BEATS BRAWN teaches foremen the best material handling practices, so that they in turn will know what to teach their workers. (Class II Film) (LM)

STOP, LOOK AND LISTEN pictures a safety inspection committee at work—shows what to look for when making a plant inspection. (Class II Film) (LM)

PRINCIPLES AND INTEREST demonstrates that selling safety is like selling anything else. Only when workers are interested can you prevent accidents. (Class II Film) (LM)

PRODUCTION WITH SAFETY proves conclusively that it takes less time to prevent accidents than to have them—that safety increases production. (Class II Film) (LM)

MEMBER PRICES

	Single Copy
Class I Films	\$20.50
Class II Films	13.80
Class III Films	34.50
Speaking of Safety, set of 6 Films	115.00
Human Factors in Safety, set of 6 Films	115.00
Safety Management for Foremen, set of 10 Films	115.00

Purchase Price

	2 to 9 Copies	10 or More
Class I Films	\$19.50	\$18.40
Class II Films	13.20	12.60
Class III Films	33.00	32.00
Speaking of Safety, set of 6 Films	109.00	103.00
Human Factors in Safety, set of 6 Films	109.00	103.00
Safety Management for Foremen, set of 10 Films	109.00	103.00

Preview & Rental Service

(Shipped Prepaid—Return Prepaid)

Class I Films	\$ 5.00
Class II Films	5.00
Class III Films	5.00
Speaking of Safety, set of 6 Films	\$ 7.50 (Preview Only)
Human Factors in Safety, set of 6 Films	7.50 (Preview Only)
Safety Management for Foremen, set of 10 Films	10.00 (Preview Only)

Rental Rates shown are per week or fraction thereof. User pays return charges.

Preview and Rental service is available only within continental limits of the United States.

Non-member prices are double member prices. (LM) indicates Leader Manual is furnished.

SUPERVISOR TRAINING—continued

INDUSTRIAL SUPERVISOR

TO KEEP YOUR FOREMEN SAFETY-MINDED

An excellent way of selling safety to foremen. It is a safety aid that month in and month out, consistently drives home the idea that safety and production go hand in hand—that both are the responsibility of your foremen.

Each 16-page issue includes a ready-made 5-minute safety talk; an article on some phase of accident prevention of particular interest to foremen; a photo story on some hazard common to all types of industries; a how-to-do-it page on one specific operation; a genial editorial by the popular Arm Chair Expert; and a limerick contest that does wonders in stirring up extra interest in safety.

The Industrial Supervisor takes over where the films and other foremen training aids leave off. It keeps alive your foremen's interest in safety . . . assures you of their continuing cooperation in making your safety program a success.



Safety in Foremanship

A set of 12 pamphlets, each devoted to an outstanding phase of the accident problem, and treated wholly from the foreman's viewpoint. These pamphlets provide a ready-made course for teaching the principles of accident prevention to foremen. An instructor's outline suggesting ways

to present the material to foremen, and a series of questions and answers for each booklet are provided with the set. Size 6" x 9".

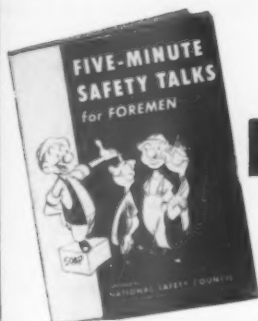
PSYCHOLOGY OF SAFETY IN SUPERVISION

A new series of six interesting booklets written by Dr. J. L. Rosenstein, noted psychologist, author and lecturer, dealing with the fascinating subject of how to handle people. The booklets have a safety slant, but more than preventing accidents, they help supervisors develop a good understanding of worker attitudes and actions, enabling them to do a better job of handling their workers.

The titles are (1) You Can't Change Human Nature (2) What Is Your U. Q.? (3) Teaching Safety on the Job (4) People Act Alike (5) Safety Teamwork (6) You Are Human Too.

One reading on these booklets will prove to you the dynamic appeal and popularity this new series will have with your supervisors. Size 6" x 9".





FOREMEN'S FIVE MINUTE SAFETY TALKS

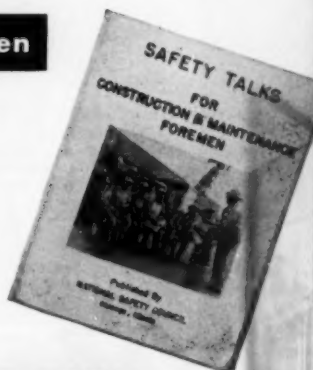
A new book that contains about 52 informal five-minute safety talks for your foremen. Each talk is written by a safety man with years of experience in his field. Covering all phases of industrial accident prevention from,

why there is a safety program to step-by-step explanations of specific hazards and equipment, it contains material for conducting departmental safety meetings every week of the year. 112 pages, size 8½" x 11".

Safety Talks for Construction and Maintenance Foremen

58 safety talks for foremen, packed into a 96-page booklet. These hard-hitting, five-minute talks cover everything from why accident prevention to blasting operations. Written in the language of the foremen. A page of instruction tells your foremen how to use the talks—not

as speeches to be read, but as sources of information. Gets down to details on how to conduct "tool box" meetings that pack a punch like a bulldozer. Written by members of the Executive Committee, Construction Section, National Safety Council. Size 8½" x 11".



Illustrated Safety Talks



The Illustrated Safety Talk is a new type of visual aid that has been recently developed. It arms the foreman, the keyman in the safety program, with an effective tool with which to do an outstanding job of selling safety to his men.

Although these talks are designed primarily for foremen, they will also prove useful to safety engineers and to key personnel at all levels.

Photographs and drawings for the group appear on one side of each page, with the safety talk for the leader on the reverse side. Included with the ten pages of illustrations are several blank pages for mounting photographs of your own operations. Size 11" x 14", spiral bound with an easel-type binder. Titles of the talks are:

- IST No. 1—Why Accident Prevention in the Construction Industry?
- IST No. 2—Shovels, Cranes and Draglines
- IST No. 3—Personal Protective Equipment

MEMBER PRICES

	1 to 9	10 to 99	100 to 999	1,000 to 4,999*
Industrial Supervisor—Annual Subscriptions (12 issues) paid in advance, each	\$1.80	\$1.70	\$1.65	\$1.60
Annual Subscriptions—monthly billing, each .....	.18	.16	.145	.135
Single issues, each .....	.18	.17	.165	.16
Psychology of Safety in Supervision, set each	1.05	1.00	.90	.85
Foreman's Five Minute Safety Talks, each	1.70	1.50	1.45	1.35
Safety Talks for Construction & Maintenance Foreman, each	1.70	1.50	1.45	1.35
Safety in Foremanship, set each	1.95	1.70	1.50	1.45
Illustrated Safety Talks, each	5.00	4.70	4.50	4.50

Non-member prices are double member prices.

*Write for prices on quantities of 5,000 or more.

EMPLOYEE TRAINING



Safe Worker

THE SAFETY PUBLICATION WORKERS ASK FOR

A pocket size monthly magazine that is one of the most popular of the Council's worker publications. Let this compact safety salesman call on your workers every month, it sells safety painlessly with experience-tested tips on preventing accidents and eliminating unsafe practices. Cartoons, illustrations and stories add humor to every page. **SAFE WORKER** has the light touch that gains worker interest and readership by talking in his own language about things of interest to him. Seasonal suggestions give timely hints on special hazards of the month. Two colors, 16 pages, size 3½" x 5½".

AREN'T PEOPLE FUNNY?

A brand new booklet illustrating in an amusing way, a number of common human foibles and faults that can lead to accidents. Aimed at improving attitudes and bettering human relationships, thus lowering accident records, it shows in simple fashion the relationships between attitudes and behavior, especially unsafe behavior. Spotlighting various types of characters: the playboy, the hot rod, the big shot, the show-off and others, this pocket-sized booklet attracts attention and holds interest with its cartoons and breezy style. Excellent for use as payroll enclosures, for distribution on the job or at safety meetings. 16 pages, 2 colors, 3" x 5½".



FIRST AID REMINDERS

This set of eight 4-page leaflets is designed for quick reference in emergencies, and for effective first aid instruction. Excellent for use at first aid meetings, for payroll enclosures, information racks and employee handouts. Knowing what not to do if an accident happens is as important as knowing what treatment to give. The First Aid Reminders list the "Don'ts" as well as the "Do's"—stress the vital importance of getting a doctor or nurse as soon as possible. They help prevent inexperienced and inadequate "doctoring." Size 3½" x 6½", in attractive colors. Titles are:

- What To Do For A Wound—For Shock
- What To Do For Bleeding
- What To Do For A Broken Bone
- What To Do For Heat Cramps, Heat Exhaustion, Sunstroke and Fainting
- What To Do For Poisoning
- Artificial Respiration
- What To Do For Bruises, Sprains, and Strains—How To Move An Injured Person
- What To Do For Burns and Scalds

SAFETY CALENDAR

Each page of the calendar features a monthly theme of importance to plant safety programs. The illustrations, painted by leading artists, depict humorous applications of the themes. The back of the calendar page has safety tips showing the worker and his family how to prevent accidents at work and at home. A high degree of readership is assured by monthly cash-prize contests. The safety calendar is an easy way to carry safety training into your workers' homes and to remind them daily that safety pays. Write for further information.

SAFE RAILROADER

A bi-monthly pocket size magazine for railroad workers. Patterned after the SAFE WORKER and SAFE DRIVER, it makes liberal use of clever cartoons, common sense safety rules and humorous stories to win the employee's interest.

Each issue discusses one or more of the major hazards that cause the greatest number of fatalities and accidents. And the magazine is addressed to all classes of railroad men—engineers, firemen, trainmen, shop and maintenance of way. 3½" x 6". Annual subscription (6 issues).

SO HELP ME!

Here's a sprightly safety rule booklet designed to stimulate interest in your safety program. It's jam packed with no-accident tips, eye catching safety cartoons and lilting safety jingles that are guaranteed to perk up jaded safety appetites. SO HELP ME is an inspirational memory refresher highlighting the tried and true precautions which can eliminate accidents. It does a good job of presenting your safety rules in an easy-to-read, convincing style. Covers safe clothing, machine manners, wearing goggles, how to lift, piling materials, correct use of ladders, falls, hand tools, power tools, good housekeeping, fire prevention and keeping fit. Your workers are sure to like it. 2 colors—3" x 5½".

SHOP SAFETY

A two-color booklet that teaches safety with many pictures and few words. Contains 58 photographs, numerous hand-drawn illustrations and a number of cartoons. It covers use and care of hand tools; lifting, handling, and piling material; precautions to use around machinery—making adjustments, oiling, guarding, proper dress, etc; good housekeeping; preventing fires; avoiding falls; protective equipment; and first aid. Size 5½" x 8½", 32 pages, durable cover.

DON'T TOUCH THAT WIRE

A leaflet that covers the dangers of touching fallen wires, and what to do when someone comes in contact with live wires. Stresses it's just as easy to be careful as it is to be careless. 8 page folder, 3½" x 8".

SEVEN STEPS TO SAFETY

An instruction card that tells hotel patrons how to protect themselves in case of emergency. To be placed under glass table tops, on doors or walls. 5" x 7½".

BROKEN GLASS CARD

Red and white warning card to be placed on trays to warn kitchen workers of the presence of broken glass. Printed on both sides, 4" x 6".



I JUST GAVE MY SEAT TO A LADY

A hilarious collection of safety cartoons by Walt Ditzel. 120 pages of humor that points up the light approach to safety training. A fine souvenir for safety dinners or plant rallies that your workers will enjoy for months to come. Size 4½" x 6½".

CRANE BOOM VS POWER LINE

An illustrated six page folder designed to educate management, supervisory employees and workers in the proper methods of overcoming hazards that exist when operating equipment near power lines. It stresses the need for close cooperation between contractors and utilities companies before starting a job. Size 3½" x 8½".

SAFETY REGISTER

Colorful booklet prepared for restaurant and hotel workers. Illustrates common causes of accidents to employees and the public, and how to avoid them. Cartoon illustrated, 2 colors, 16 pages, 3" x 5½".

MEMBER PRICES

	1 to 9	10 to 99	100 to 999	1,000 to 4,999*
First Aid Reminders, sets of 8, each	\$.33	\$.24	\$.16	\$.12
Any selection, each	.07	.05	.035	.026
Aren't People Funny?, each	.12	.07	.06	.045
Don't Touch That Wire, each	.06	.03	.023	.017
So Help Me!, each	.17	.09	.07	.05
Shop Safety, each	.29	.23	.17	.16
Safety Register, each	.15	.09	.08	.06
Broken Glass Card, each	.06	.02	.016	.014
Seven Steps to Safety, each	.06	.04	.029	.023
I Just Gave My Seat to A Lady, each	.29	.23	.21	.18
Crane Boom vs Power Line, each	.10	.06	.045	.035
Safe Worker Annual Subscriptions (12 issues) paid in advance, each	.70	.66	.50	.42
Annual Subscriptions, monthly billings, each	.07	.066	.046	.036
Single issues, each	.07	.066	.05	.042
Safe Railroader Annual Subscriptions (6 issues) paid in advance, each	.44	.39	.29	.25
Annual Subscriptions bi-monthly billings, each	.09	.08	.053	.044
Single issues, each	.09	.08	.038	.05

*Non-member prices double member prices.
Write for prices on quantities of 5,000 or more.

EMPLOYEE TRAINING

SAFETYGRAPHS

Bring Your Safety Talks to Life...

Safetygraphs are visual aids for training small groups. They are illustrated safety talks, ready for use at a moment's notice. They are complete within themselves, need no time-consuming preparation or costly equipment. A complete safetygraph consists of from 12 to 16 spiral-bound pages, inserted in a brown leatherette portfolio. Set the safetygraph on any flat surface, open the portfolio cover, and PRESTO—you have an easel. Your safety talk is printed on the back pages in large, easy-to-read

type. And on the front pages, facing your audience, are colorful cartoons and duotone photographs that highlight your talk and drive home your statements. There are 19 safetygraphs now available. Use them in your own plant, to make your safety training job easier and more effective. You'll find that superintendents, foremen, training supervisors—even workers inexperienced in safety—can give a smooth, informative safety talk with a safetygraph as a helper.

No. 1 **HOW TO LIFT**, teaches your workers efficient and safe procedures for lifting, handling, and carrying materials. The rules stressed are: keep hands in the clear; get a good grip; have a good footing; bend your knees; keep the load close to you; get help for heavy or awkward loads. The safetygraph gives specific instructions for handling long loads, drums, heavy boxes, and bags.

No. 2 **BENCH AND STAND GRINDERS**, discusses and illustrates: eye protection around grinders; proper spacing for work rests; the right work posture; preventing exploding wheels; avoiding overheating; checking wheels for damage; checking speed ratings when changing wheels; ring-testing wheels for defects; proper washers; protective hood adjustments; dressing wheels; preventing excessive vibration.

No. 3 **OPERATING A POWER PRESS**, particularly emphasizes guarding—what types of guards are common, and why it is to the operator's advantage to use them. Also discussed are: use of sticks to remove pieces that are caught; special tools to insert and remove work; what to do when fatigued or interrupted; preventing damage to dies; signs of trouble; proper dress; handling stock parts, and scrap.

No. 4 **WEARING GOGGLES**, is a head-long attack on complaints about wearing safety goggles. It shoots holes in time-worn excuses like: "they're too heavy" . . . "they get dirty" . . . "the lenses fog up" . . . "they give me a headache" "this job'll only take a minute." With humor and logic, it wins over non-believers and reconverts backsliders who have been careless about wearing goggles.

No. 5 **PLANT HOUSEKEEPING**, stresses that it's up to each worker to wipe up grease, put scrap in a box, keep the work place clear, and keep lockers clean. It also discusses the safe way to stack materials: start the foundation right; keep the pile straight; cross-tie layers; stepback upper rows of tall piles; keep aisles and fire exits clear, etc.

No. 6 **LADDER SAFETY**, teaches the four primary rules of ladder safety: 1. Select the right ladder—neither too long nor too short; 2. Inspect it before use—look for structural weakness or faulty repairs; 3. Secure it—place at proper angle, use non-slip feet, lash if necessary; 4. Use properly—climb up and down the safe way, secure tools so they won't drop.

No. 7 **USING FIRE EXTINGUISHERS**, explains the different classes of fires, what type of extinguisher to use for each, and how to use it. It also discusses exactly what to do in case of fire. The safetygraph is most effective when used as Part 1 of a two-part course. Part 2 should be outdoor demonstrations where extinguishers are used to put out actual fires.

No. 8 **ACCIDENTS DON'T HAPPEN**, gets right down to the grass root of safety—to the basic principle that accidents don't happen, they are caused. It discusses unsafe conditions and unsafe acts, cites specific instance of each type, and clearly shows how each accident could have been prevented. The safetygraph is not only a teaching aid, it also sells your workers on your safety program.

No. 9 **COMMON HAND TOOLS**, shows your workers how to avoid hand and finger injuries caused by hammers, wrenches, chisels, knives, files, and screw drivers. The four ways to prevent hand tool accidents are: use the right tool for the job; use a tool in good condition; use it in the right way; keep tools in a safe place. The safetygraph shows how these rules apply to each common hand tool.

No. 10 **PREVENTING FIRE**, explains what fire is, and how it can be prevented by controlling two of the three fire components—heat and fuel. It discusses the major sources of heat in industrial fires—electricity, matches, and smoking, and also the types of fuel involved in most industrial fires—oil spills, oily or greasy rags and clothing, flammable liquids and vapors, etc.

No. 11 **TOE PROTECTION**, is a persuasive presentation of the facts about safety shoes. It examines all the common objections to wearing safety shoes—"They hurt my feet" . . . "they're cold" . . . "I don't like them"—and proves that each is based on unfounded prejudice or lack of information. It also shows some off-the-job uses for safety shoes.

No. 12 **ELECTRICAL HAZARDS**, sums up the four most important points to remember about electricity and electrical equipment. 1. Use good equipment. 2. Don't overload circuits. 3. Keep away from live conductors. 4. Ground an electrical tool before use. Discusses and illustrates the common causes of electrical burns and injuries. **ELECTRICAL HAZARDS** pays for itself in a short time by showing workers how they can prolong the life of electrical devices, and avoid cord damage, insulation failure, etc.

No. 13 **INDUSTRIAL POWER TRUCKS**, gets down to actual cases of what causes plant truck accidents. Discusses parking, loading, inspecting trucks daily, and safe driving practices. Illustrates some of the wrong ways to use a truck. Covers operating in close quarters, and the safe way to approach and enter an elevator, etc. Drives home the idea that too much speed, inattention, violations of driving rules and improper attitudes are the main causes of plant truck accidents. Reach every driver with this easy-to-use, effective, driving training aid.

No. 14 **ONLY A SCRATCH**, goes to work on an important safety problem—how to get workers to use first-aid on little injuries. Shows how to treat different types of wounds such as punctures, lacerations, and incisions. Sells your workers on the idea that protecting themselves against infection isn't a sign of weakness, it's good sense. Particularly emphasizes that good physical condition doesn't always mean good resistance to germs.

No. 15 **WANTED—SAFE WORKERS**, an informal session on what makes a safe worker. Deals with the worker who understands his job and does it well, and with the fellow who learns the hard way. Covers, in story style, how to act at work, and dress at work. Includes horseplay and crazy stunts, right kind of clothes, personal protective equipment, first aid, good housekeeping. Stresses cooperation between fellow workers. Sums up by pointing out that safety is a necessary part of our lives if we are going to do all the things we've planned.

No. 16 **FALLS**, discusses falls, one of the most serious of all industrial accident hazards. It covers everything from plunging down unguarded elevator shafts to stumbling over objects on the floor. Safetygraph 16 shows how to prevent falls from ladders, scaffolds, material piles, on slippery or cluttered floors, down stairways and unprotected openings. It discourages the use of makeshift equipment and falls caused by horseplay.

No. 17 **DOES YOUR ACCIDENT SHOW?** Attacks the employee's attitudes which lead to accidents. It shows employees the reasons why people pull boners that can lead to injury: being "safety lazy," failure to follow rules, horseplay, going too fast, distractions, failure to think, not feeling up to par, neglecting to remove accident causes, hesitating to ask questions.

No. 18 **MY ACHING BACK!** This safetygraph treats the subject of back injuries—why and how they happen. The drawings show how the back functions, and what happens when it is strained or twisted. An effective way to drive home the fact that there are proper ways to lift, it stresses the need for securing help in lifting and shows how easy it is to become injured.

MEMBER PRICES

	1 to 9	10 to 99	100 to 999	1,000 to 4,999*
Safetygraphs, complete, each	\$14.55	\$13.75	\$13.20	\$13.20
Essels only, each	3.55	3.30	3.30	3.30
Safetygraphs only, each	11.00	10.45	9.90	9.90

Members may order Safetygraphs on 3-day approval. Non-member prices are double member prices.

*Write for prices on quantities of 5,000 or more.



EMPLOYEE TRAINING

Decalcomanias Use Safety Decals

● Safety decals attached to machine frames, guards, fuse boxes, and fire doors constantly remind workers to observe safe practices; follow specific instructions. These full-color decals conform to ASA specifications. Order by letter and number. Available only in size 2" x 3 1/2".



SAFETY DECALS

- | | |
|---|---|
| S- 1—Sound Warning at Corners and Aisle Crossings | S- 8—First Aid Kit |
| S- 2—Keep This Machine in Safe Condition | S- 9—Only Authorized Persons May Change Fuses or Make Repairs |
| S- 3—Do Not Talk To or Distract Operator | S-10—Keep This Space Clear |
| S- 4—Before Starting Be Sure Everyone Is in the Clear | S-11—Deposit Waste Material Here |
| S- 5—No Riders | S-12—Deposit Waste Here |
| S- 6—Keep Tools in Safe Condition and in Proper Place After Use | S-13—Avoid Falls. Walk—Do Not Run—Use the Handrail |
| S- 7—Keep Floor Clean Around This Machine | S-14—Please Keep Your Locker Clean |
| | S-15—All Injuries Must Be Reported Promptly |



CAUTION DECALS

- | | |
|---|---|
| C- 1—Shut Off Machine When Not in Use | C- 9—Do Not Operate Without Guards |
| C- 2—Fire Door—Do Not Block | C-10—Keep Guards in Correct Adjustment |
| C- 3—Shut Off Engine Before Refueling | C-11—Replace Guard Before Using Machine |
| C- 4—To Be Operated Only by Authorized Employees | C-12—Wear Your Respirator |
| C- 5—Pull and Lock Switch Before Oiling, Adjusting or Repairing Machine | C-13—Ground Equipment Before Use |
| C- 6—Use Brush to Remove Chips | C-14—Do Not Use Near Electrical Equipment |
| C- 7—Stop Machine Before Making Adjustments | C-15—Wear Safety Cap While Operating This Machine |
| C- 8—Use Fuse Puller to Remove Fuses | C-16—Keep Closed |



DANGER DECALS

- | | |
|--|--|
| D- 1—Do Not Wear Gloves While Operating This Machine | D- 8—Corrosive Liquids—Use Personal Protective Equipment |
| D- 2—High Voltage | D- 9—220 Volts |
| D- 3—Keep Out of Direct Line of the Saw | D-10—440 Volts |
| D- 4—Keep This Guard in Place | D-11—Moving Parts—Keep Clear |
| D- 5—For Emergency Use Only | D-12—No Smoking |
| D- 6—Wear Goggles While Operating This Machine | D-13—Wear Goggles in This Area |
| D- 7—Flammable—Keep Flames and Heat Away | D-14—Oxygen—Keep Oil and Grease Away |
| | D-15—Acid |
| | D-16—Caustic |



FIRE DECALS

- | | |
|---|--|
| F-1—For Wood, Paper, Textiles and Rubbish (Class A Fires) Not Electrical Equipment | F-3—For Burning Liquids (Gasoline, Oil and Paint and Electrical Equipment) (Class B & C Fires) |
| F-2—For Wood, Paper, Rubbish and Burning Liquids (Class A & B Fires) Not Electrical Equipment | F-4—Sprinkler Valve—Do Not Close Unless Authorized |

GREEN CROSS—MEMBER N.S.C.—Decal

Available Only to Members N.S.C.

Photoscripts

A series of booklets that teach safety with pictures. Illustrated with actual on-the-job scenes that are realistic and convincing. A training aid that gets attention—brings results. Samples on request.

MACHINISTS HAND TOOLS

Presents four easily-followed rules for eliminating hand tool accidents: 1. The right tool; 2. In good condition; 3. Used correctly; 4. Kept in a safe place.

A CLEAN PLANT

A clean plant is safer, more efficient, a better place to work. This photoscript points out that plant housekeeping is the responsibility of each worker.

PREVENT FIRE

Pictures common fire causes—how they can be spotted and eliminated. Stresses importance of knowing where emergency fire equipment is and how to use it.

GET FIRST AID

Stresses the importance of immediate first aid for ALL injuries. Tells workers that a minor scratch—untreated—can result in a crippling injury; never take a chance.

DRESS FOR SAFETY

Stresses clothing that fits you and your job, and the need for special protection on special jobs. Covers goggles, hard hats, safety shoes, gloves, etc.

LEARN SAFETY

Presents the ten basic rules for the prevention of personal injury. Discusses unnecessary chances, horseplay, handling material safely, first aid, safe clothing, good housekeeping, etc.

FALLS

Falls rank second only to automobile accidents as a cause of accidental death. This photoscript pictures ten safety rules for avoiding falls; eliminating fall hazards.

HANDLE WITH CARE

Presents practical tips on lifting, carrying, and piling. Stresses importance of wearing gloves and protective foot gear when lifting. Must reading for all workers.

CONSTRUCTION EQUIPMENT SAFETY

Teaches workers to know and recognize standard signals for operation of cranes. Illustrates safe practices to observe in working with cranes, bulldozers, and dump-trucks.

MAINTENANCE TOOLS

Drives home the A B C's of handling tools: choose the right tool; keep it in good condition; use it correctly; and keep it in a safe place.

PROTECT YOUR EYES

Illustrates the two good reasons for wearing safety glasses—both your eyes. Gives the prescription for eye safety: wear the right glasses, make sure they fit, and keep them clean.

FREIGHT HANDLING

Covers such standard procedures as how to lift; how to carry; how to pile materials, and how to operate hand trucks. Emphasis is placed on unloading hazards, and the positioning and anchorage of dock plates.

CONTROL OF FIRE

Teaches workers about fire control and what to do when they start. It explains the different classes of fires, pictures the various type of extinguishers, how to use them, and on which type fire. The importance of keeping fire doors and equipment clear of obstructions is stressed.

MEMBER PRICES

	1 to 9	10 to 99	100 to 999	1,000 to 4,999*
Discalcomanies, any selection, each...	\$.12	\$.07	\$.058	\$.046
Photoscripts, any selection, each.....	.12	.07	.06	.045

Non-member prices are double member prices.
Write for prices on quantities of 5,000 or more.



SAFETY FILMS



35 mm SOUND SLIDEFILMS

Council sound slidefilms consist of a 35 mm film-strip and a 33-1/3 RPM recording. Film titles having Conference Leader's Manuals (discussion outline and quiz), are indicated by (LM). One copy is furnished with each film purchased. Filmstrip or record replacements for Sound slidefilms may be purchased at \$3.50 each, provided the damaged part is returned with the order. Other-



wise, cost of either replacement is 1/2 the price listed for the complete film. Films will be sent on approval. Preview service charge is applied against the purchase price if the film is retained.

worker training course

This group of ten 35 mm sound slidefilms is designed to give workers a well-rounded basic course in safety. Each slidefilm and record in this series has been prepared specifically as an industrial training tool. The Leader's Manuals contain instructions for holding 10 stimulating safety meetings, quizzes on the subject matter of each film, and discussion outlines. Everything is planned, even an exact time schedule for the meetings. Set includes leatherette-bound carrying case.

LEARN AND LIVE

Presents the 10 basic rules of industrial safety. This film lifts these rules from your company rule book; brings them to life with action shots showing how and why they are applied—what happens when they are ignored. 15 minutes. (LM) (Class I Film)

SAFE HANDLING OF MATERIALS

One-fourth of all industrial accidents involve handling of materials. Films shows how foremen can give effective instructions on how to lift and carry, how to avoid sprains, strains, hernias, mashed fingers and toes. 15 minutes. (LM) (Class I Film)

NO LAUGHING MATTER

Typical plant scene showing group of safety people discussing falls; how they can be prevented. Group starts off with a discussion of falls involving vehicles; proceeds to ladders and scaffolds. Winds up with miscellaneous fall hazards. 15 minutes. (LM) (Class I Film)

SAFE IN HAND

Consists of two filmstrips—Part 1, Machinist's Tools and Part 2, Maintenance Tools; a two-sided record. Part 1, illustrates safe practices in use of hammers, chisels, wrenches, pliers, screwdrivers; Part 2—saws, axes, pinch bars, crow bars, and jacks. 20 Minutes. (LM) (Class I Film)

KEEP IT CLEAN

Put across the idea that any plant can be kept clean if everyone pitches in. Shows before-and-after pictures of housekeeping conditions; how to interest workers in keeping the plant clean; the trouble spots that need special attention. 15 minutes. (LM) (Class I Film)

FIFTEEN MINUTES TO GO

Dramatizes the extreme risk involved in delaying or neglecting first aid for all injuries. Convinces workers that it's smart to get first aid immediately—for even the tiniest hand or finger cut, harmless-appearing burns. 15 minutes. (LM) (Class I Film)

STOP THE FIRE THIEF

Deals with the causes of industrial fires and how safe practices will eliminate those causes. Discusses improper handling and storage of flammable liquids, defects in electrical equipment, welding torch sparks, open heating equipment, smoking and poor housekeeping. Also available in slide motion. (Class I Film) (LM) See footnote on page 26 marked +

WHAT'S YOUR SAFETY I.Q.?

Film on off-the-job safety intended for employee use, but may be used by any group. Dealing with safety in the home, in traffic and recreation, with audience participation in solving the quizzes. The Quiz pictures show a number of "what's wrong with this picture?" Also available in sound motion. (Class I Film) See footnote on page 26 marked +

EASY ON THE EYES

Makes your workers eye-protection-wise. Shows the various types of glasses for specific jobs and stresses three rules; proper fitting, wear the correct protection, keep them clean. Also available in sound motion. 20 Minutes. (Class I Film) (LM)

CAUSE AND CURE

Points out that too many foremen pass the buck to their workers when they have to report on an accident. Shows that accidents have definite causes—and cures. Illustrates unsafe acts and conditions that foremen should look for. 20 Minutes (LM) (Class II Film)

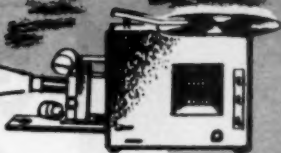
MEMBER PRICES

Prices include carrying case for 5 or more films.

Purchase Price	1 copy	2-9	10 or more
Complete set, each	\$178.00	\$172.00	\$167.00
Any 9 films	\$167.00	Any 6 films	\$115.00
Any 8 films	149.00	Any 5 films	98.00
Any 7 films	130.00		

Single films—see price schedule at right. Non-member prices are double member prices. Preview service shipped prepaid—return prepaid. \$10.00 (preview only). Preview service available only within the continental limits of the United States.

Specialized 35 mm



MY EYE DEAL

Colored cartoon film that combines giggles with goggles. Tells the story of Horkimer, and how he learned the value of wearing safety goggles. It's a story with a moral that workers don't soon forget. Running time, 10 Minutes. (Class IV Film)

CONSTRUCTION EQUIPMENT SAFETY

A dozen unsafe acts cause three out of four accidents with construction equipment. Film illustrates these mistakes; tells the safety rules all workers should observe. 20 Minutes. (LM) (Class I Film)

GIANT HANDS OF INDUSTRY

Points out that the two main causes of crane accidents are, failure to use correct hand signals, and failure to keep in the clear. Illustrates standard hand signals and safety tips. 15 Minutes. (LM) (Class I Film)

KEEP 'EM ROLLING

Special railroad film in which a car foreman and a railroad safety officer tell about the precautions every car man must take to protect himself and others from injury. 15 Minutes. (LM) (Class I Film)

LABORATORY GLASSWARE

The majority of laboratory accidents are caused by improper or careless handling of glass equipment. This film shows the precautions to observe in handling glass. 10 Minutes. (LM) (Class I Film)

MEN OF MAINTENANCE

A know-how film for railroad maintenance men. Illustrates the precautions to be observed in operating motor track car, on all types of maintenance equipment, on or near third rail. 15 Minutes. (Class I Film)

MINUTE MEN

Dramatizes the hazards involved in the work of utility company linemen—the safety precautions they must observe. Also safety rules for boiler room, substation, meter department workers. 20 Minutes. (Class I Film)

SAWMILL SAFETY

A safety tour through a sawmill—illustrating safety precautions from the pond through all operations to the piling machine. Also first aid, housekeeping, and protective equipment. 17 Minutes. (LM) (Class I Film)

TIMBER

Presents a session of a logging company's safety committee. Topics discussed; walking on logs; falling hazards; avoiding injuries from axes and saws, widow makers, line and gear, and other common hazards. 17 minutes. (LM) (Class I Film)

WOODWORKING MACHINES

Gus, an old, safety-wise woodworker, takes two new safety committee recruits through the shop. Emphasizes the value of machine guards on saws, splitters, jointers, shapers, and planers. 17 Minutes. (LM) (Class I Film)

WOVEN WITH SAFETY

Discusses major causes of accidents in textile mills; improper material handling, machinery hazards, compressed air, knives, scissors. Stresses importance of first aid. 15 Minutes. (LM) (Class I Film)

PACKED WITH SAFETY

A film produced specifically for the meat packing industry. Stresses the importance of using caution in working with knives. Also discusses protective equipment, first aid, lifting. 15 Minutes. (LM) (Class V Film)

SAFELY WE WORK

Railroad film. Shows how to get on and off a moving car, how to climb tank ladders. Discusses hand, power and air brakes; walking between and across tracks; coupling and cutting cars. 15 Minutes. (Class V Film)

YOU AND YOUR TRACTOR

Explains the safe operation of industrial power trucks; ram-type, fork, carrier, tow, dump, crane, flat top, wiggle tail, and scoop. Also proper loading and maintenance. 15 Minutes. (LM) (Class V Film)

SAFE HAULAGE IN COAL MINES

Pictures are based on actual accident experience. Discusses maintenance hazards of motors and cars. Silent filmstrip. (LM) (Class VII Film)

JACKHAMMER SAFETY

Emphasizes importance of protective equipment, keeping jackhammer in good condition. Illustrates standard safe practices in drilling and blasting. Silent filmstrip. 15 Minutes. (LM) (Class VII Film)

member prices

	Single Copy	Purchase Price 2 to 9 Copies	10 or more Copies	Preview and Rental Service (Shipped Prepaid — Return Prepaid)
Class I Films.....	\$20.50	\$19.50	\$18.40	\$5.00
Class II Films.....	13.80	13.20	12.60	5.00
Class IV Films.....	27.50	26.50	25.00	5.00
Class V Films.....	8.00	7.50	6.90	2.00—Preview Only
Class VII Films.....	11.50	10.90	10.35	3.00

Rental Rates shown are per week or fraction thereof. User pays return charges.

Preview and rental service is available only within the continental limits of the United States.

(LM) indicates Leader Manual is furnished.

Non-member prices are double member prices.

EMPLOYEE TRAINING —continued

35 mm SOUND

SLIDE FILM



★ INDUSTRIAL—Continued

BLASTING SAFELY IN MINES

Demonstrates the "know how" and skill of using explosives safely. Also discusses storage of explosives. Silent film strip. (LM) (Class VII Film)

MEN AND MOTIVE POWER

Dramatizes the precautions to observe in railroad round-house and shop work. Discusses falls—how they can be eliminated. Shows correct use of tools, importance of protective equipment. 15 Minutes. (LM) (Class VIII Film)

INVISIBLE RED INK

An appeal to business management to recognize the importance of a planned safety program, not only for humanitarian reasons, but from an actual dollars and cents standpoint. 20 Minutes. (Class VI Film)

BUILDING CONSTRUCTION SAFETY

This film is aimed directly at the old superstition that each story of a building is paid for with the life of a worker. Covers demolition and remodeling, steel scaffolding, ladders, unguarded floor openings, concrete placement, material hoists, housekeeping, etc. Points out the difference between expensive and dangerous operations, and fast and efficient ones. Silent film strip. (LM) (Class VII Film)

CAUSE FOR ALARM

Instructs worker on the control of fires, how to turn in an alarm, how to meet situations in an emergency. It shows in simple fashion how the various classes of fire extinguishers are used and explains the theory of combustion. Also available in 16mm motion. (LM) (Class I Film) See footnote marked †.

FREIGHT HANDLING SAFETY

A highly specialized material handling film covering standard procedures on how to lift, carry and pile materials, how to operate a hand truck. The main emphasis is on freight car and motor truck loading hazards; the safe way to open freight car doors; lowering and anchoring dock plates; how to handle "sleepers." Also available in 16mm motion. (LM) (Class I Film) See footnote marked †.

FILMS FOR SUPERVISORS

Sixteen films for foremen and supervisors are described on pages 14 and 15.

MOTOR TRANSPORTATION

Eight films are described on page 34.

★ PUBLIC SAFETY

FOR YOU AND YOURS*

Narrated by Vincent Pelletier, features Edw. G. Robinson and the Dinning Sisters, it tells what can be done to prevent accidents. 20 Minutes. (Class VI Film)

ARE YOUR FEET KILLING YOU?*

Hits hard at the causes of pedestrian accidents. Illustrated with actual case histories of pedestrian accidents. 20 Minutes. (Class IX Film)

IT'S YOUR HOME—PLAN IT SAFELY*

Shows how to build safety into the home. Discusses stairs, kitchens, closets, plumbing, heating and electricity. 20 Minutes. (LM) (Class IX Film)

MARY JONES GOES TO COURT*

Shows how the Police Department, through engineering, education, and enforcement, tries to prevent accidents. 20 Minutes. (Class IX Film)

NO USE SKIDDING*

Film that dramatizes the hazards of winter driving—how to avoid them. Discusses braking on snow and glare ice, other driving tips. 20 Minutes. (Class IX Film)

ON RECORD*

Most states require a written report of any accident involving an injury or damage over \$25.00. Shows procedure for preparing, filing and how used. 20 Minutes. (Class IX Film)

TRAFFIC JAM AHEAD*

Illustrates intensified traffic hazards. Outlines program for traffic safety. 20 Minutes. (Class IX Film)

TESTING THE DRINKING DRIVER*

A dramatic story of scientific tests used in drunk driving cases. 20 Minutes. (Class IX Film)

SIGNS OF LIFE*

Narrated by Eddie Cantor, the film deals with all the signs and signals to be found along the highway and in city traffic. Learning to recognize those signs and signals by their shape is stressed. (Class X Film)

THEATRE TRAILERS

Write in far description of 16 and 35mm sound motion pictures on traffic and home safety, suitable for theatres, schools, etc. One minute running time.



Sound slide films are now being produced in a new form known as the 30-50 low frequency signal. One side of the sound slide film recording uses an inaudible signal for automatically advancing each picture in synchronization with the narration on the recording. The other side of the record has an audible signal for advancing the film manually. Special projectors are needed to operate films with the inaudible signal. In the future, all new films will be produced in this new form.

16 mm SOUND

MOTION PICTURES

★ RENTAL FILMS

16mm sound motion pictures

The films listed below were not produced by the Council, but prints are available for rental. See the National Directory of Safety Films for complete descriptions and information as to other sources for rental and loan. Council rental rates: \$5.00 per week or fraction thereof.

★ INDUSTRIAL

The films listed below have the same subject matter as the sound slidefilm, but employs a new technique in visual education. It combines motion with still pictures and special optical effects to give motion sequence.

FREIGHT HANDLING SAFETY—materials handling film on standard procedures on lifting and piling; hand trucks; loading and unloading. Running time about 11 minutes. (LM) (Class XIII Film) Also available in 35mm.

CAUSE FOR ALARM—tells workers how to fight fire and meet the situation in an emergency. Running time about 13 minutes. (LM) (Class XIII Film)

STOP THE FIRE THIEF—deals with the causes of industrial fires and how to prevent them. Running time about 13 minutes. (LM) (Class XIII Film)

EASY ON THE EYES—teaches workers the ways for eye protection with proper glasses for specific jobs and their care. Running time about 15 minutes. (LM) (Class XIII Film)

WHAT'S YOUR SAFETY I.Q.?—dealing with off-the-job safety in the home, in traffic and recreation, with audience participation quizzes. Running time about 15 minutes. (Class XIII Film)

FOR SAFETY'S SAKE—shows how to use, inspect, and care for portable power tools—specifically drills, grinders, saws and electrical tools. Running time about 15 minutes. (LM) (Class XI Film)

★ PUBLIC SAFETY

HOME SAFE HOME* shows how every member of the family can help eliminate home hazards and avert tragedy. Running time about 12 minutes. (Class III Film)

Burning—The Safe Way

Eye Accidents

Stop Silicosis

The Safety Slouth (hazard detecting and correcting)

Welding—The Safe Way

Care and Use of Hand Tools (set of six films)

1. Wrenches
2. Pliers & Screwdrivers
3. Chisels
4. Hammers
5. Punches, Drifts and Bars
6. Hack Saws

Breath of Life (pole top resuscitation)

Traffic with the Devil* (dangers of motor traffic)

Miracle in Paradise Valley* (Farm Safety)

Diagnosis Danger* (Hospital Safety Program)

Highway Mania*

1-2-3 Go! (Street crossing rules)

Men at the Wheel*

Safety in the Home*

Screwdrivers & ScrewJays* (crazy drivers & jaywalkers)

Teach Them to Drive*

The Seventh Column* (unnecessary home, farm and street accidents)

The Chance to Lose* (driver safety)

What Price Happiness* (home safety)

X Marks the Spot*

You Bet Your Life* (observing signals)

Look, Listen and Live* (grade crossing safety for motorists)

Outlawing Farm Fires* (color-silent)

member prices

	Purchase Price	
	Single Copy	2 to 9 Copies
Class I Films.....	\$20.50	\$19.50
Class III Films.....	34.50	33.00
Class VI Films.....	8.00	7.50
Class VII Films.....	11.50	10.90
Class VIII Films.....	40.00	34.50
Class IX Films.....	10.00	9.50
Class X Films.....	4.50	4.50
Class XI Films.....	60.00	57.00
Class XIII Films.....	52.00	49.00

Preview and Rental Service (Shipped Prepaid—Return Prepaid)
\$5.00
5.00
Free Loan — User pays shipping charges.
\$3.00
5.00
Free Loan — User pays shipping charges.
Free Loan — User pays shipping charges.
\$5.00
5.00

Non-member prices are double member prices, except films having asterisk () by title.

Rental Rates shown are per week or fraction thereof. User pays return charges.

Preview and rental service is available only within the continental limits of the United States.

(LM) indicates Leader Manual is furnished.

SAFETY POSTERS

Posters, with their colorful pictures and punchy captions, are the mass advertising and selling medium for your safety program.

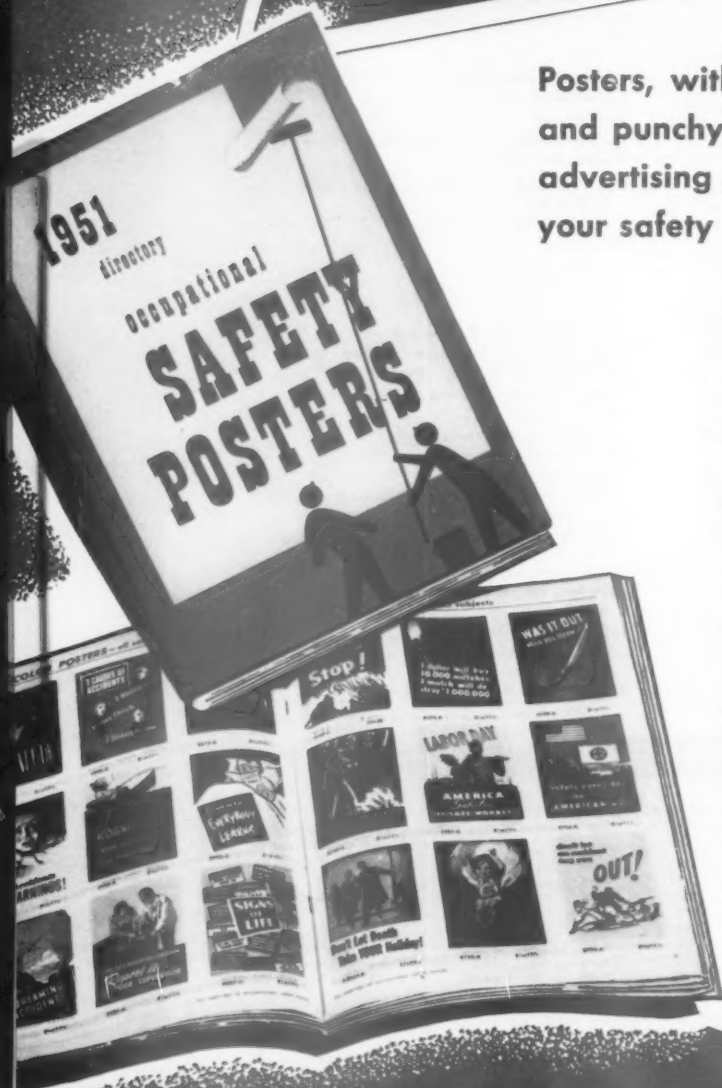
The Council maintains a stock of approximately 1000 different posters covering all phases of safety and health.

The **DIRECTORY OF OCCUPATIONAL SAFETY POSTERS** illustrates hundreds of posters in miniature, classified and indexed for easy reference. New posters produced during the year are shown in the **NATIONAL SAFETY NEWS**. Highly specialized posters for a particular industry are announced in the News Letter of the Section concerned, but often are not shown in the **NEWS** because of their limited application. All posters shown in the Directory and the **NEWS** will be available throughout the year.

Non-member price of **DIRECTORY OF OCCUPATIONAL SAFETY POSTERS** same as member price.

Posters are produced in four sizes: "A" size, 8 1/2"x11 1/2"; "B" size, 17"x23"; "C" size, 25"x36" and Jumbo. One "C" size poster and one Jumbo poster are produced each month, and are shown in the poster section of **NATIONAL SAFETY NEWS** along with other current poster reproductions.

Those who do not wish to select their own posters may have them selected by Council staff engineers, and shipped automatically each month. Staff engineers make selections each month to provide specialized automatic poster service for 56 different types of operations. See the **DIRECTORY OF OCCUPATIONAL SAFETY POSTERS** for a complete explanation of automatic poster service, or write the Council for additional information.



JUMBO POSTERS

THE BIGGEST THING IN SAFETY



Jumbo posters, placed at your plant entrance or at other vantage points, make an impressive safety display that can't be missed. Council artists design these posters to be read at a glance and remembered for a long time.

These eye-catching displays measure 11 feet 8 inches wide by 9 feet 11 inches high, are weather-proofed, and come in eight sections for easy mounting. Three-color illustrations feature safety messages

of a general nature which are appropriate for all phases of operations and all types of readers.

The National Safety Council produces 12 different Jumbo posters each year. They are available on an annual subscription basis, a poster being delivered each month in time for posting on the first of the following month. Only the current month's poster can be shipped; back issues are not stocked. See Service Guide 5.1-1 or write the Council for further information.

PAYROLL ENCLOSURES

Miniature black and white reproductions of safety posters may be ordered for use as inserts in pay envelopes. You select 12 different posters from those shown in black and white in the poster directory or in NATIONAL SAFETY NEWS. (Do not select posters shown in color.)

The enclosures are printed 12 to a sheet and then cut to 1 1/4" x 2 1/2" size. Minimum order of 1200 enclosures (100 sheets) is required. Quantities of each of the miniatures selected must be identical. Order by poster number. First 100 sheets \$11.50—each additional 100 sheets \$1.95.

Note: Payroll enclosures cannot be shipped between November 1 and December 31, so please plan your ordering accordingly.

POSTER FRAMES

Black enameled metal frames, made to fit National Safety Council posters. Especially useful when display boards are not available, or to spot a single poster at a strategic point. Frames are large enough to accommodate cardboard backing and a glass or plastic sheet in front of the poster.

"C" SIZE POSTERS

The newest addition to the Council's poster service is the industrial (25" x 38") "C" poster. One of these large indoor posters is produced each month. They are printed in two colors, and carry general safety messages applicable to any industrial audience.

The current month's poster is illustrated in the poster section of the NATIONAL SAFETY NEWS. "C" posters may be purchased from month to month or on an annual subscription.

POSTER ELECTROS

You may obtain electrotypes of any poster illustrated in black and white in the poster directory or in the poster section of NATIONAL SAFETY NEWS. (Electrotypes of 3 and 4 color posters are not available.) Electrotypes are approximately 1 1/4" x 2 1/4", suitable for use in plant publications and leaflets. Order by poster number.

MEMBER PRICES

	1 to 9	10 to 99	100 to 999	1,000 to 4,999
"A" Posters (8 1/2" x 11 1/2"), each	\$.09	\$.05	\$.046	\$.034
All one poster, each	.09	.05	.046	.032
"B" Posters (17" x 23"), each	.18	.15	.138	.102
All one poster, each	.18	.15	.138	.096
"C" Posters (25" x 38"), each	.36	.30	.275	.20
Annual Subscriptions (12 posters), each	3.60	3.00	2.75	2.00
Directory of Occupational Safety Posters, each	.50	.40	.35	.35
Jumbo Posters, Annual Subscriptions (12 posters) paid in advance, each	49.00	46.00	43.50	43.50
Annual Subscriptions on monthly billing, each	4.90	4.60	4.35	4.35
Poster Electros, each	3.45	3.45	3.15	3.15
Poster Frames, "A" size, (8 1/2" x 11 1/2"), each	1.15	1.00	.90	.90
"B" size, (17" x 23"), each	1.70	1.40	1.15	1.15

Non-member prices are double member prices, except as otherwise stated.

*Write for prices on quantities of 5,000 or more.



Safety Instruction Cards

"... a wealth of practical information"

Safety Instruction Cards are 3" x 5" vertical cards listing safe practices, accepted methods of performing specific operations and other information for workers and supervisors.

The Safety Instruction Cards are inexpensive, time-saving aids. Use the cards for quick campaigns to correct unsafe practices; pass out for discussion at safety meetings. Many of the cards are suitable for distribution as payroll enclosures.

The complete set is a valuable reference source for preparing job analyses, writing speeches, articles and planning plant or departmental safety meetings. Every supervisor should have a set of Safety Instruction Cards that pertain to his work available for reference purposes. It is a handy file of safety data, a rapid method of hazard detecting, a collection of complete concise safety check lists right at his fingertips.

The complete set includes a two-way index (Service Guide 5.2) for locating the cards you want in a flash; a set of numerical dividers; and the file case. The metal case has a handsome gray finish, and is designed to hold the complete set of cards, with enough extra space to hold any future additions.

The basic industrial set consists of 465 Industrial cards of interest to every industry. The Special Industries cards apply to specific industries. Non-Industrial cards include motor transportation and off-the-job safety.

A complete set of all the cards listed numbers approximately 690 in all.

The Industrial set consists of all the basic industrial cards plus those Special Industries cards that apply to the purchasers own industry. The Non-Industrial cards are not included with the Industrial Set, but may be ordered by special purchase.



NO-ACCIDENT AWARD PINS

This handsome screw-post pin is the ideal recognition for workers who exert extra effort to work safely. Featuring the Green Cross in green enamel, each pin shows the exact number of accident-free years. 1 to 4 year pin: bronze; 5 to 9 year pin: silver plate; 10 to 40 year pin: gold plate. May not be used as driver awards. Sold to members only. In ordering, specify quantity of pins desired for each year. Pins are numbered 1 through 40 years.



GREEN CROSS FLAG

Green Cross emblem on white field. Use it for contests or general inspirational effect. Drop it to half-staff when there is a lost-time accident. 4' x 6'. Flame-proofed upon request. \$0.30 extra. Same price to non-members.

GREEN CROSS PINS

Satin-finish silver-plated lapel pin featuring the Green Cross for Safety emblem in contrasting green enamel. Popular screw-post design. Same price to non-members.

N-30

GREEN CROSS ELECTROS

An electrotpe of the Green Cross emblem suitable for use on letter-heads, booklets, and in advertising. The Green Cross for Safety emblem may not be used directly or by implication to endorse or approve a commercial product. Members may use the words: "Member National Safety Council," in conjunction with this copyrighted emblem. Mats and proofs of the emblem in 1/2", 1" and 2" sizes free. Same price to non-members.

SAFETY CONTEST TROPHY

An attractive award plaque to reward the best safety record in interdepartmental or interorganization contests. 6" x 7 1/2" solid bronze casting on an 8" x 10 1/2" walnut board. Ample space for engraving inscription.



DSS FLAGS

(Distinguished Service to Safety) Available to those winning DSS Awards. 4' x 8 1/2'.

IN THE PINK

A Ditzien cartoon-illustrated booklet presenting the fundamental rules for good health, but with a fresh approach. Covers such subjects as: posture, sleep, eye and foot care, weight, cleanliness, and first aid. 16 pages, 2 colors, 3" x 5½".

HOLD EVERYTHING

A colorful off-the-job booklet dealing with accidents in the home, on the street, at play, on summer vacations. Includes an interesting self-test for checking hazards in the worker's home. Printed in red and blue, 16 pages illustrated, size 4" x 7". Non-member prices same as member.

SAFE 'N' SOUND

Set of 12 office and off-the-job 4 page safety leaflets. Include one each month in the worker's pay envelope. Printed in 2 colors, size 3½" x 6½".

SAFE AT HOME

A gay, informative booklet packed with suggestions for eliminating accident hazards in the worker's home. Room by room, it illustrates ideal arrangement from the safety angle. Printed in two colors, liberally illustrated, 16 pages, size 4" x 7½". Non-member prices same as member.

THE DRIVER'S LUCKY SEVEN

An 8 page folder showing that driving a car needn't be a gamble. You can make your own luck by: keeping the car safe; holding speed down; stopping, looking and listening; being in shape to drive; passing with care and watching for pedestrians. 2 color, 3½" x 8".



HAPPY VACATION

A colorful illustrated booklet filled with hints and tips showing how to have a safe, happy vacation. A handy chart is included to keep track of expenses. 8 pages, 2 colors, 3½" x 8".

WHIP YOUR WEIGHT IN WILDCATS

A smartly cartooned 8 page folder on ways to stay young enough to whip your weight in wildcats. The emphasis is on moderation, for those who want to keep in trim. 8 pages, 2 colors, 3½" x 8".

MEMBER PRICES	1 to 9	10 to 99	100 to 999	1,000 to 4,999**
Safety Instruction Cards, each	\$.05	\$.025	\$.019	\$.017
Complete Set, including file case & guides, each	12.65	12.10	11.55	11.00
Industrial Set, including file case & guides, each	8.25	7.70	7.15	6.60
File Case and Guides, only, each	2.20	2.10	2.00	2.00
No Accident Award Pins				
Bronze (1 to 4 years) each	.35	.30	.25	.20
Silver Plated (5 to 9 years) each	.37*	.32*	.27*	.22*
Gold Plated (10 to 40 years) each	.40*	.35*	.30*	.25*
Green Cross Flags, each	9.00	8.50	8.00	8.00
Green Cross Pins, each	.44*	.33*	.29*	.23*
Green Cross Electras, each				
1½", 3/8"	.75	.69	.69	.69
3/4", 1"	1.38	1.20	1.20	1.20
1½"	2.00	1.90	1.90	1.90
Safety Contest Trophy, each	25.00	23.00	22.00	22.00
DSS Flags, each	25.00	23.00	23.00	23.00
In The Pink, each	.17	.09	.07	.05
Hold Everything, each	.17	.12	.08	.06
Safe 'N' Sound, set of 12, each	.50	.40	.35	.30
Safe At Home, each	.17	.09	.07	.05
The Driver's Lucky Seven, each	.10	.06	.045	.035
Happy Vacation, each	.10	.06	.045	.035
Whip Your Weight in Wildcats, each	.10	.06	.045	.035
Safety 'Round The Clock, each	.10	.06	.045	.035
When You Build or Remodel, each	.17	.12	.10	.09

*Plus 20% Federal Excise Tax.

**Write for prices on quantities of 5,000 or more.

Non-member prices are double member prices, except as otherwise stated.

SAFETY 'ROUND THE CLOCK

A booklet with interest in safety extended to the home and to the worker's family. It gives hour by hour hints on home safety, from the time to rise, until the cat is put out. Printed in 2 colors, 8 pp. 3 fold, size 3½" x 7½". Non-member prices same as member.

WHEN YOU BUILD OR REMODEL

A 16-page informative booklet on how to prevent accidents through the design and construction of safer homes. Covers how to ground electrical appliances; temperature and pressure controls; placement of gas meters; safe stairway design; good building practices; and many other vital points of interest to every home owner. Non-member prices same as member. 2 colors, size 4" x 7".

MOTOR

TRANSPORTATION

A Complete "PACKAGE" SAFETY SERVICE for FLEETS . . .

The materials pictured on these two pages can be provided regularly to your drivers through the Council's complete Motor Transportation Service. The Tables

on page 35 show the exact service you will receive, and the cost. Items may be purchased individually. See prices on opposite page.



FOR EXPERTS ONLY



NATIONAL SAFETY COUNCIL

NATIONAL SAFETY COUNCIL

NATIONAL SAFETY COUNCIL

NATIONAL SAFETY COUNCIL

If They've Started - let them cross in Safety

STAY RIGHT!

BE BRIGHT dim your light!

Carbon Monoxide



SAFE DRIVER AWARD

Qualified drivers employed by installations using the Motor Transportation Service receive this gold-plated award. It is considered the badge of expert drivers. Holders regard it as a symbol of achievement. Available in three forms: cup or lapel pin, and key chain. Not for sale.

SAFE DRIVER

This popular pocket-size publication is issued monthly for regular distribution to drivers. Written for drivers in language they understand and enjoy. Drivers enjoy the clever cartoon-illustrations; like the common sense approach to safe driving. 16 pages, size 3 1/4" x 6".

DRIVER LETTERS

Individual monthly letters on Council letterheads, cartoon illustrated, highly readable and aimed at high-frequency and high severity accident causes. Council envelopes will be furnished if you wish to mail to drivers' homes. Sold on annual subscription basis only (12 issues).

AUTOMATIC TRANSPORTATION POSTER SERVICE

The colorful accident prevention posters are printed in two sizes: "A" size (8 1/2" x 11 1/2") and "B" size (17" x 23"). A poster set consist of 2 different "A" size and 2 different "B" size posters monthly. These posters are effective safety reminders when posted where drivers congregate or pass frequently. Sets are available covering bus, truck and taxicab operation.

FOR EXPERTS ONLY

A handsome three-color booklet that tells drivers on keeping a perfect no-accident record. Gives the rules for qualifying for the National Safety Council Safe Driver Award, and stresses the safety measures that must be taken to stay clear of the situations that cause accidents. 24 pages, size 5 1/2" x 8 1/2".

FLEET SAFETY MANUAL

Consists of seven parts and supplementary material in a binder. Fleet Safety Program—a general discussion of accident prevention techniques and how they may be organized into a safety program. Selection of drivers, Driver Training, and Accident Reports and Records—a recommended system of recording and analysis including sample forms.

PUBLIC SAFETY

A popular magazine, published monthly, covering current fleet safety problems and other phases of safety in street and highway traffic. Featuring articles by recognized fleet and traffic authorities, it is "must" reading for the fleet supervisors. Size 8" x 11". Sold on annual subscription. Non-member prices same as member.

NATIONAL FLEET SAFETY CONTEST

All members of the National Safety Council may enter their vehicles in the annual Fleet Safety Contest held from July 1 to June 30. Winners in each of the 27 divisions receive trophies and national recognition.

NEWSLETTERS

Commercial Vehicle or Transit (see page 4).

ACCIDENT FACTS

Complete statistical summary (see page 4).

ACCIDENT RATES PAMPHLETS

An annual publication to help the safety man check his motor vehicle accident record with records of other operators. (See page 5.)

CONGRESS TRANSACTIONS

(See page 12.)

SAFETY CALENDAR

(See page 18.)

SERVICES

Consultation, Library, etc. (see page 13).

member prices

Public Safety Subscriptions	1 to 9	10 to 99	100 to 999	1,000 to 4,999*
(12 issues), each	\$4.00	\$3.80	\$3.45	\$3.45
(add \$.50 for foreign, except Canada and Pan American Union)				
For Experts Only, each	.23	.21	.17	.15
Driver Letters, subscriptions				
(12 issues), each	.52	.40	.29	.26
Fleet Safety Manual, each	8.50	8.00	8.00	8.00
SAFE DRIVER				
Annual subscription (12 issues), paid in advance, each	.70	.66	.50	.42
Annual subscription, monthly billing, each	.07	.066	.046	.036
Single issues, each	.07	.066	.05	.042
	1 to 4	5 to 49	50 to 999	
Poster Service, sets, each	6.48	4.80	4.41	

Non-member prices are double member prices, except as otherwise stated.

*Write for prices on quantities of 5,000 or more.





DASH CARDS

Colorful 3" x 6" cards, illustrated and carrying a safety message. Subscription provides 24 cards, printed on both sides—enough for 4 changes per month. Metal holders that may be attached to the dashboard are furnished without charge with each set you order. Specify "Bus" or "Truck."

SAFETYGRAPH

No. 101 WHY BACK INTO TROUBLE—An illustrated safety talk for commercial truck drivers. It teaches drivers when and why to avoid unnecessary backing; precautions to take; hazards to look out for when backing; how to back safely; how to avoid curb parking accidents; safe speeds when backing. Amusing and instructive, it will hold drivers' attention at safety sessions; and give the instructor a definite plan for discussion.

DEFENSIVE DRIVING

Popular 24-page booklet that combines good fun with sound tips on good driving. Cartoon illustrations picture the folly of aggressive or careless driving habits. Tells drivers that preventing accidents is not so much the knack of squeezing out of tight spots as it is the ability to anticipate and avoid such situations in the first place. Reminds drivers that safe, courteous driving is good public relations. Size 3" x 5". Specify "Truck" or "Bus."

EXPERTS DON'T SKID

Cartoon-illustrated leaflet presenting sound tips on safe winter driving. Tells commercial vehicle drivers to: get feel of road; adjust speed to conditions; use chains; keep wind shield clear; pump brakes; follow at safe distance. Prepared by Committee on Winter Driving Hazards. 4" x 6".

FLEET SAFETY MEMOS

2. Fleet Safety Posters, 1950.
3. Publicity Procedure When Presenting Safe Driver Awards, 1950.
10. Protective Coloring for Commercial Vehicles, 1950.
13. Safety Meetings for Commercial Drivers, 1950.
14. National Safety Council Safe Driver Awards, 1949.
18. Investigating Commercial Vehicle Accidents, 1950.

Single copies, \$17. Quantity prices vary with number of pages. Write for quotations.

SAFETY INSTRUCTION CARDS

For a complete listing of cards pertaining to motor transportation, see service guide 5.2 (also see page 30).

ACCIDENT RECORDS AND FORMS

Record forms prepared for Transportation companies to enable them to keep up-to-the-minute information on their accident experience. Order by number and title.

- VEH-1—Commercial Vehicle Report (8½ x 11"—2 sides).
- VEH-2—Accident Report Package Envelope (4¼ x 8"—2 sides).
- VEH-3—Commercial Vehicle Driver Record Card (8½ x 11"—2 sides).
- VEH-4—Commercial Vehicle Accident Analysis (8½ x 11"—1 side).
- VEH-5—Commercial Vehicle Accident Analysis (Long Form) (11" x 16½"—1 side).
- VEH-6—Award and Accident Record (5" x 8"—2 sides).
- VEH-10—Safe Driver Award Record Card (10¼ x 16"—1 side).
- VEH-12—Witness Card (3" x 5"—1 side).



MOTOR TRANSPORTATION FILMS.....

35mm SOUND SLIDEFILMS

Defensive Driving—Dramatizes the principles of defensive driving—and driving courteously. 20 minutes. (Class I Film)

If It Happens—Tells what to do in case of an accident. Many other tips. 20 minutes. (Class I Film)

Pilots of the Highway—Tells of the many things a professional driver has to learn. 20 minutes. (Class I Film)

P. U. D. Driver Wins Again—Typical day in the life of a pick-up and delivery driver. 20 minutes. (Class I Film)

16mm SOUND MOTION PICTURES

The Operator and Safety—Discusses safety measures for city bus operators. 19 minutes. (Class XII Film)

The Truck and the Driver—Covers safe driving practices in city and country, truck operation and maintenance. (2-week rental limit) 10 minutes. (Class XII Film)

They Drive in Safety—A training film showing the requirements for commercial vehicle drivers. (2-week rental limit.) 12 minutes. (Class XII Film)

It's a Big Job—An induction film for streetcar and bus employees. 25 minutes. (Class XII Film)

MEMBER PRICES

	1 to 9	10 to 99	100 to 999	1,000 to 4,999
Dash Cards, sets, each.....	\$.69	\$.58	\$.44	\$.40
Safetygraph No. 101, complete, each.....	14.55	13.75	13.20	13.20
Ease's only, each.....	3.55	3.30	3.30	3.30
Safetygraph only, each.....	11.00	10.45	9.90	9.90
Defensive Driving, each.....	.17	.10	.08	.058
Experts Don't Skid, each.....	.06	.02	.017	.015
Accident Records and Forms, each.....	.08	.023	.017	.015
VEN-1, VEN-4, VEN-6, VEN-12.....	.08	.035	.029	.023
VEN-2, VEN-5.....	.12	.08	.044	.044
VEN-10.....	.23	.17	.138	.12

	Single Copy	Purchase Price 2 to 9 Copies	10 or more
Class I Films.....	\$20.50	\$19.50	\$18.40
Class XII Films.....			

Rental Only—NOT FOR SALE

*Write for prices on quantities of 5,000 or more. Non-member prices are double member prices.

Preview and rental service available only within continental limits of the United States.

Rental Rates shown are per week or fraction thereof. User pays return charges.

Preview & Rental Service
(Shipped Prepaid—Return Prepaid)
\$3.00
5.00

COMPLETE TRANSPORTATION SERVICE

The charges shown in the box apply only to organizations already holding Industrial, Insurance Company or Transportation Company memberships in the Council. Insurance agencies and companies holding a Complete Transportation Membership pay a slightly higher charge to cover the dues allocated to the Council's basic services. Non-members should write for appropriate service charges.

ANNUAL SERVICE CHARGE

No. of Drivers	Cost per Driver
1 to 9	\$22.50*
10 to 19	2.45
20 to 29	2.10
30 to 49	1.80
50 to 74	1.60
75 to 99	1.50
100 to 199	1.35
200 to 399	1.25
400 to 699	1.15
700 to 999	1.10
1000 to 1999	1.00
2000 to 4999	.95
5000 or more	.90

* Per Fleet, Minimum Charge.

SERVICE TABLE

Number of Drivers	1 to 9	10 to 49	50 to 99	100 or more
1. Fleet Manual, as issued (large) Fleet Manual, as issued (small)	— 1	1 —	1 —	1 —
2. Automatic Posters No. of 8½"x11½" posters, monthly No. of 17"x23" posters, monthly	2 2	2 2	4 4	8 8
3. Public Safety Magazine, monthly	1	1	1	1
4. Sectional Enrollment No. of Sections	1	2	2	2
5. Sectional News Letters No. of Copies, monthly	1	2	2	2
6. Accident Facts, annually	0	1	1	1
7. Accident Rates Pamphlet, annually	0	1	1	1
8. Congress Transactions, annually General Section Meetings	1 1	1 2	1 2	1 2
9. National Safety Calendar	1	1	1	1
10. Safe Driver Magazine	One Monthly Copy for Each Driver			
11. Safe Driver Awards	One Annually for Each Eligible Driver			
12. For Experts Only (Award Rules)	One copy per each Driver first year, one copy per 5 drivers thereafter.			
13. Driver's Letter, monthly	One Monthly Copy for Each Driver			
14. Participation in the National Fleet Safety Contest	Contest begins July 1 each year and runs to June 30 of following year.			

CONDITIONS AND TERMS

Prices shown in this catalog are effective December 13, 1950, payable U. S. Funds. They are subject to change without notice.

All prices shown are based on a single order for delivery in one shipment to one destination (one shipment per month on annual subscriptions). Quantities are not cumulative over a period of time, or for a number of locations, to obtain quantity prices.

On a single order requesting shipment to more than one location, the price per copy shall be the listed price in the group bracket in which each shipment falls. (Example: Order requesting shipment of 10 copies to each of 19 locations. The total cost of the order will be — 19 (locations) x 10 (copies) x price per copy in each group (10 to 99).

All prices unless otherwise shown are pre-paid destination within the United States and Canada and Pan American Union. Customs charges will not be paid by the Council. An additional charge equal to 4% of the order will be made on shipment to foreign countries.

Terms of payment on all invoices are 30 day net, except quantity calendar purchases. Annual subscriptions payable in advance.

Remittance should accompany all orders totalling one dollar or less to conserve labor and speed up handling of the order.

Single copies of monthly publications—12 issues annually—can be purchased at 1/10 the annual subscription rate.

Special sorting or packaging, trimming to special sizes or other special handling of publications will, wherever possible, be performed as requested. Service charges will be made for the cost of such work.

IMPRINTING CHARGES

In general, imprinting is limited to three lines. On large posters, imprinting is limited to the right hand half of the lower margin. It is understood that a quantity within 4% above or below the quantity requested will constitute an acceptable delivery on any order requiring imprinting.

Imprinting at time of publication.

Safe Driver, Safe Worker, and all other publications imprinted at time of publication (except calendars), regardless of quantity—per lot or per month on monthly publications.....\$3.50

On monthly publications, the per lot-per month charge of \$3.50 is effective only when the imprint remains the same during the period of subscription.

Imprinting after publication:

Small posters (8½"x11½")—1st 1,000 or fraction.....\$4.50
additional 1,000 or fraction.....3.50

Large posters (17"x23")—1st 1,000 or fraction.....\$10.00
additional 1,000 or fraction.....7.50

Other publications imprinted after publication, where space permits
1st 1,000 or fraction.....\$7.00
additional 1,000 or fraction.....3.00

Posters presented in four-colors or without a white border cannot be imprinted. Imprinting can be done on all Council publications (outside front and back covers only) provided there is sufficient space and a light background color.



★ National Safety Council ★

A NON-PROFIT ORGANIZATION DEVOTED TO THE PREVENTION OF ACCIDENTS

Council Announces New Scale of Membership Dues

ADOPTION by the Board of Directors of revised dues schedules for National Safety Council members was recently announced by Charles R. Cox, Board Chairman. The Board approved the revisions at its December 12 meeting and these were ratified at another meeting on January 22. The revised schedules become effective April 1, 1951.

Increases for industrial, railroad, and insurance members range from eight to 15 per cent, Mr. Cox announced. In addition, he pointed out, companies formerly paying the maximum dues have been broken down into several groups, with the largest companies going into a dues bracket approximately forty per cent above the previous maximum. "These new groups were established," Mr. Cox said, "because consultation with representatives of larger companies indicated that our previous maximum dues groups had covered too wide a size range. The great differences in size, in other words, definitely indicated the appropriateness of a difference in dues."

"This revision of the dues structure," Mr. Cox continued, "completes the adjustment of our income prospects, which the Board considered necessary to meet increased costs of operation. Increases in prices of Council materials, and increases in our magazine advertising rates, have previously been announced to the membership."

Action on the price and dues increases was initiated in the Council's Finance Committee. O. Gressens, Chairman of the Committee, recently reflected the judgment of his Committee as follows:

1. The affairs of the Council are being carried on efficiently and economically, and are directed to the activities and programs desired by the members.
2. The Council, along with business generally is being required to meet increased costs of operation, involving payroll, publishing, and other expense.
3. Although the Council is now in excellent financial position, it cannot remain strong in future months and years unless our dues and price structure is raised sufficiently to absorb the increased costs with which we are faced.

"Putting the matter in another way," Mr. Gressens continued, "the Council cannot maintain the quantity and quality of its services, under present business conditions, without increasing its revenue. The Finance Committee initiated these moves to increase our revenue because we earnestly felt that Council members would want continuation and im-

provement of services, not retrogression."

The revised dues schedules for various types of membership follow:

INDUSTRIAL

Employees	Annual Dues
1 to 99	\$ 25
100 to 199	40
200 to 299	55
300 to 399	75
400 to 599	110
600 to 799	150
800 to 1,199	190
1,200 to 1,999	230
2,000 to 2,999	270
3,000 to 3,999	320
4,000 to 5,999	380
6,000 to 8,999	460
9,000 to 11,999	540
12,000 to 15,999	620
16,000 to 19,999	710
20,000 to 29,999	800
30,000 to 49,999	900
50,000 or more	1000

RAILROAD

Road Miles	Annual Dues
1 to 99	\$ 25
100 to 199	40
200 to 299	55
300 to 399	75
400 to 599	110
600 to 799	150
800 to 1,199	190
1,200 to 1,999	230
2,000 to 2,999	270
3,000 to 3,999	320
4,000 to 5,999	400
6,000 to 9,999	450
10,000 or more	500

CASUALTY INSURANCE

Premium Income (\$1,000)	Annual Dues
0 to 199	\$ 25
200 to 299	40
300 to 399	55
400 to 599	75
600 to 799	110
800 to 999	150
1,000 to 1,199	180
1,200 to 1,399	220
1,400 to 1,599	250
1,600 to 1,999	290
2,000 to 2,499	350
2,500 to 2,999	430
3,000 to 3,499	500
3,500 to 3,999	570
4,000 to 4,999	650
5,000 to 5,999	730
6,000 to 7,999	850
8,000 to 9,999	1000
10,000 to 14,999	1150
15,000 to 19,999	1300
20,000 to 39,999	1450
40,000 to 59,999	1600
60,000 to 79,999	1800
80,000 or more	2000

LIFE INSURANCE

Premium Income (\$1,000)	Annual Dues
Less than 500	\$ 35
500 to 749	60
750 to 999	90
1,000 to 2,499	150
2,500 to 4,999	210
5,000 to 9,999	260
10,000 to 19,999	310
20,000 to 29,999	370
30,000 to 99,999	430
100,000 to 499,999	500
500,000 or more	600

the
**LIGHTER
SIDE**
by **SID
HIX**
NATIONAL SAFETY COUNCIL



He who works with his hands is a laborer. He who works with his hands and his head is a craftsman. He who works with his hands, head and heart is an artist. And he who works with his hands, his head, his heart and his feet is a salesman.—The Employment Counselor.

SAFETY

POSTERS



9257-C

25x38

Above new "C" poster, issued monthly, is indicative of the other two color posters—shown in black and white on the following pages and in the 1951 Poster Directory.



IMPORTANT

ALL miniatures shown on these pages are of **NEW** posters—produced for the first time this month. Excepting the Jumbo poster (below, left) all will be available during the remainder of 1951. Those displayed on the following pages in

black and white are actually printed in two or more colors. We suggest you refer to this copy of the News in making monthly selections.

In addition to these new posters, you will find a great variety of subjects among the 744 posters illustrated in the 1951 Directory of Occupational Posters, and which will also be in stock throughout 1951. For a proven plan of selecting your posters objectively, refer to pages 4 and 5 in the Directory—a copy of which has been sent to all National Safety Council members. Additional copies are available at 50 cents each—write Membership Dept., N.S.C.



JUMBO POSTER FOR APRIL, 1951

The Jumbo poster, issued monthly, is designed for outdoor use and is available to members on annual subscription but is not stocked. Its actual size is 9' 11" by 11' 8".



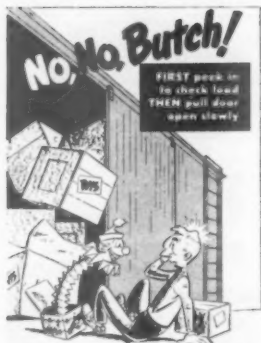
9233-A

8½x11½

This new four color poster is illustrative of the 72 four color posters shown in the 1951 Poster Directory.

Electrotypes of poster miniatures on this page are not available, nor can payroll inserts be supplied.

Posters below are printed in two or more colors
(Available only in sizes indicated)



NATIONAL SAFETY COUNCIL

9204-B

17x23



NATIONAL SAFETY COUNCIL

9229-A

8½x11½



NATIONAL SAFETY COUNCIL

9064-A

8½x11½



NATIONAL SAFETY COUNCIL

9223-B

17x23



NATIONAL SAFETY COUNCIL

9236-A

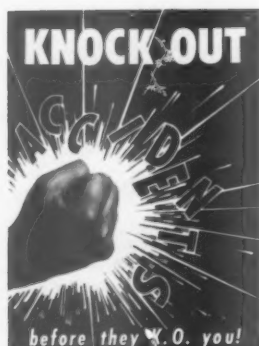
8½x11½



NATIONAL SAFETY COUNCIL

9061-A

8½x11½



NATIONAL SAFETY COUNCIL

9227-A

8½x11½



NATIONAL SAFETY COUNCIL

9228-A

8½x11½



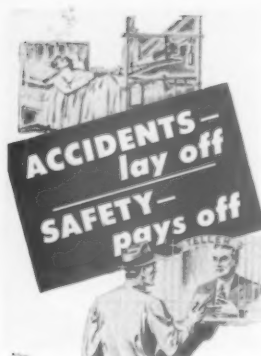
NATIONAL SAFETY COUNCIL

9256-A

8½x11½

Electrotypes or payroll inserts can be furnished on all poster illustrations shown above.

Posters below are printed in two or more colors
(Available only in sizes indicated)



NATIONAL SAFETY COUNCIL
9199-B 17x23



NATIONAL SAFETY COUNCIL
9230-A 8½x11½



NATIONAL SAFETY COUNCIL
9208-A 8½x11½



NATIONAL SAFETY COUNCIL
9088-A 8½x11½



NATIONAL SAFETY COUNCIL
9235-A 8½x11½



NATIONAL SAFETY COUNCIL
T-9203-B 17x23



NATIONAL SAFETY COUNCIL
V-9240-B 17x23



NATIONAL SAFETY COUNCIL
V-9239-A 8½x11½



NATIONAL SAFETY COUNCIL
V-9241-B 17x23

Electrotypes or payroll inserts can be furnished on all poster illustrations shown above.

DIRECTORY OF ADVERTISERS

	Page No.		Page No.		Page No.
Ace Manufacturing Co......187		Bailey, William M., Co......157		Houston 2, Tex., 747 M. & M. Bldg.	
2601 Broadway, Paducah, Ky.		1221 Banksville Rd.,		Los Angeles 3, Calif., 6104 Main St.	
Acme Protection Equip. Co......89		Pittsburgh 16, Pa.		Montreal, Quebec, Canada, Sun Life Bldg.	
3037 W. Lake St., Chicago 12, Ill.		Bashlin Bldg., Grove City 3, Pa.	115	Philadelphia 39, Pa., 4604 Walnut St.	
DISTRIBUTORS:		Bausch & Lomb Optical Co......82		Pittsburgh, Pa., 201 Pennsylvania Ave.	
Boston 10, Mass., 261 Franklin St.		681 St. Paul St., Rochester 2, N. Y.		St. Louis 3, Mo., 2606 Olive St.	
Buffalo 8, N. Y., 1443 Main St.		*BRANCH OFFICES:		Chicago Hardware Foundry Co. 66	
Chicago 41, Ill., 2921 N. Cicero Ave.		Boston, Mass.		North Chicago, Ill.	
Detroit 2, Mich., 6527 Hamilton Ave.		Chicago, Ill.		*BRANCH OFFICES & DISTRIBUTORS:	
E. Orange, N. J., 146 Main St.		Los Angeles, Calif.		Boston, Mass., 104 Hanover St.	
Montreal 2, Can., Sun Life Bldg.		Montreal, Quebec		(Chicago) Glen Ellyn, Ill., 501 Greenfield	
St. Louis 3, Mo., 2608 Olive St.		New York, N. Y.		Cleveland, Ohio, 356 Rockefeller Bldg.	
St. Paul 4, Minn., 1563 Como Ave.				Los Angeles, Calif., 727 W. 7th St.	
Advance Glove Mfg. Co......110		Beacon Falls Rubber Footwear.....132		Milwaukee, Wis., 5052 Plankinton	
901 W. Lafayette Blvd., Detroit		Beacon Falls, Conn.		New York, N. Y., 198 Third Ave.	
Alan Wood Steel Co......31		BRANCH OFFICES:		Philadelphia, Pa., 1701 Walnut St.	
Conshohocken, Pa.		Chicago 54, Ill., Rm. 350 Merchandise Mart		Portland, Oregon, 1238 N.W. Glisan	
*BRANCH OFFICES:		Minneapolis, Minn., 209 No. 4th St.		Rochester, N. Y., 111 Mt. Hope Ave.	
Atlanta 6, Ga., 131 State St.		New York 13, N. Y., 191 Hudson St.		St. Louis, Mo., 4908 Delmar	
Cleveland 3, Ohio, 7016 Euclid Ave.		Benjamin Electric Mfg. Co......152		Clark Equip. Co......142	
Detroit 2, Mich., 427 New Center Bldg.		Dept. U, Des Plaines, Ill.		Bottle Creek, Mich.	
Houston 2, Tex., 544 First Nat'l Bank Bldg.		BRANCH OFFICES:		Colonial Tanning Co......92	
Los Angeles 15, Calif., 620 W. Garland Bld.		Chicago, Ill., 20 N. Wacker Dr.		731 W. Virginia St.	
New York 17, N. Y., 60 E. 42nd St.		New York, N. Y., 230 W. 17th St.		Milwaukee 4, Wis.	
Philadelphia 9, Pa., 1527 Fidelity-Phila.		San Francisco, Calif., 448 Bryant St.		Columbus McKinnon Chain Corp.....139	
Trust Bldg.		Benson & Associates.....191		160 Fremont St., Tonawanda, N. Y.	
Pittsburgh 19, Pa., 912 Union Trust Bldg.		P. O. Box 7542, Chicago 80, Ill.		BRANCH OFFICES:	
Seattle 4, Wash., 502 Polson Bldg.		Beryllium Corp......163		Chicago 16, Ill., 2535 Indiana Ave.	
All American Safety Equip. Co......162		Reading, Pa.		Cleveland, Ohio	
11 S. LaSalle St., Chicago, Ill.		Bill-Jax, Inc......53		New York 17, N. Y., 1716 Grand Central	
Alcoa, A. S., Co......185		Archbold, Ohio		Terminal	
1831 Olive St., St. Louis 3, Mo.		Blaw-Knox Co......26-167		San Francisco, Calif., 612 Wells Fargo Bldg.	
BRANCH OFFICES:		Pittsburgh 22, Pa.		Consolidated Laboratories, Inc. 47	
Los Angeles 16, Calif., 1150 S. Flower St.		*BRANCH OFFICES:		1470 S. Vandeventer St.,	
Kansas City 6, Mo., 204 Bryant Bldg.		Birmingham, Ala., Brown Marx Bldg.		St. Louis 10, Mo.	
Minneapolis, Minn., 610 3rd Ave. So.		Chicago, Ill., Peoples Gas Bldg.		Coppus Engineering Corp......18	
New Orleans 13 La., 1425 Tulane Ave.		New York, N. Y., 342 Madison Ave.		123 Park Ave., Worcester 2, Mass.	
American Abrasive Metals Co......25		Philadelphia, Pa., Broad St. Station Bldg.		*BRANCH OFFICES:	
460 Colt St., Irvington 11, N. J.		Washington, D. C., Munsey Bldg.		Atlanta 3, Ga., Philadelphia 30, Pa.	
BRANCH OFFICES:		Bradley Washfountain Co......57		Chicago 7, Ill., Pittsburgh 3, Pa.	
Atlanta, Ga.		2237 W. Michigan St.,		Detroit 4, Mich., St. Louis 8, Mo.	
Boston, Mass., 10 High St.		Milwaukee 1, Wis.		Houston 2, Texas, San Francisco, Calif.	
Chicago, Ill., 111 W. Washington St.		Chippewa Falls, Wis.		New York 17, N. Y., Tulsa 3, Okla.	
Los Angeles, Calif.		BRANCH OFFICES:		Corbin Cabinet Lock Div., American	
New York, N. Y., 50 Church St.		Chicago, Ill., 564 W. Monroe St.		Hardware Corp......158	
Philadelphia, Pa., 1700 Walnut St.		Morristown, N. J., Bldg. 28, 100 Franklin St.		New Britain, Conn.	
St. Louis, Mo., 2234 Olive St.		Breck, John H., Inc......106		C-O-Two Fire Equipment Co......169	
San Francisco, Calif., Rialto Bldg.		115 Dwight St., Springfield 3, Mass.		560 Belmont Ave., Newark, N. J.	
Seattle, Wash., 1718 Broadway		BRANCH OFFICES:		*BRANCH OFFICES: In Principal Cities	
American Chain & Cable Co......140-143		Ottawa, Canada, 47 Clarence St.		Cover, H. S., South Bend, Ind. 95	
Bridgeport, Conn.		Breuer Electric Mfg. Co......20-21		Cunningham, M. E., Co......161	
*DISTRICT OFFICES:		5100 N. Ravenswood Ave.,		200 E. Carson St., Pittsburgh 19, Pa.	
Chicago, Ill., Philadelphia, Pa.		Chicago 40, Ill.		Davenport, A. C., & Son, Inc......196	
Denver, Colo., Pittsburgh, Pa.		Buffalo Fire Appliance Corp......179		311 N. Desplaines St., Chicago 6, Ill.	
Detroit, Mich., Portland, Ore.		221 Crane St., Dayton, Ohio		David's Gloves, Inc......109	
Los Angeles, Calif., San Francisco, Calif.		Buhrke, R. H., Co......115		20 W. Pleasant, Springfield, Ohio	
New York, N. Y., York, Pa.		4701 W. Grand Ave., Chicago 39, Ill.		Davis Emergency Equip. Co., Inc.....187	
American Industrial Safety		Bullard, E. D., Co......93		45 Halleck St., Newark 4, N. J.	
Equip. Co......88		275 8th St., San Francisco 3, Calif.		BRANCH OFFICES:	
American LaFrance-Feamite Corp......171		*BRANCH OFFICES & DISTRIBUTORS		Buffalo 2, N. Y., 49 W. Seneca St.	
100 E. LaFrance St., Elmira, N. Y.		Buffalo, N. Y., 1245 Niagara St.		Chicago 10, Ill., 1342 N. Sedgwick St.	
*BRANCH OFFICES:		Chicago 39, Ill., 5115 W. Diversey Ave.		Houston 2, Texas, 1011 Bell Ave.	
Boston 34, Mass., 28 Brighton Ave.		Dallas 1, Tex., 2654 Main St.		Meirose 76, Mass., 130 W. Emerson St.	
Chicago, Ill., 445 N. Lake Shore Dr.		Detroit 2, Mich., 6527 Hamilton Ave.		Oakland 18, Calif., 2808 College Ave.	
Cleveland 14, Ohio, 109 St. Clair Ave., N.E.		Duluth 2, Minn., 324 W. Michigan Ave.		San Francisco 3, Calif., 1244 Howard St.	
Detroit 4, Mich., 8059 Grand River Ave.		East Orange, N. J., 491 Prospect Ave.		Dayton Safety Ladder Co......54	
Houston 3, Texas, 11 N. Palmer St.		El Paso, Texas, 410 San Francisco St.		2339 Gilbert Ave., Cincinnati 6, Ohio	
Los Angeles 21, Calif., 733 E. 8th St.		Los Angeles 3, Calif., 6719 S. Figueroa St.		Detex Watchclock Corp......180	
Long Island City 1, N. Y., 32-20 38th Ave.		Pittsburgh, Pa., 425 Magee St.		76 Varick St., New York 13, N. Y.	
Philadelphia 8, Pa., 401 N. Broad St.		Waterbury, Conn., 79 Main St.		BRANCH SERVICES in Principal Cities	
Pittsburgh 12, Pa., 601 Suismon St.		Cambridge Rubber Co......123		Diversey Corp......42	
San Francisco 3, Calif., 24 12th St.		Taneytown, Md.		1820 Roscoe St., Chicago 13, Ill.	
American Mat Corp......32		Canfield Oil Co......40		BRANCH OFFICE: Port Credit, Ontario	
1724 Adams St., Toledo 2, Ohio		3216 E. 55th St., Cleveland 4, Ohio		Dockson Corp......92	
BRANCH OFFICE: Windsor, Ontario		PLANTS:		3839 Wabash Ave., Detroit 8, Mich.	
American Optical Co......80-81-B.C.		Corapolis, Pa.		Dolge, C. B., Co., Westport, Conn. 66	
Southbridge, Mass.		Chase Chemical Co......68		Dow-Corning Corp., Midland, Mich. 70	
*BRANCH OFFICES:		2900 Dover Ave., Cleveland, Ohio		Dri-Rite Co......40	
Atlanta, Ga.		Chemical Service of Baltimore 43		100 W. Chicago Ave., Chicago 10, Ill.	
Boston, Mass.		Howard & West Sts.		Durable Mat Co......30	
Chicago, Ill.		Baltimore 30, Md.		75 N. Pleasant St., Norwalk, Ohio	
Houston, Texas		Chesebrough Mfg. Co., Inc......189		BRANCH OFFICE:	
Kansas City, Mo.		17 State St., New York 4, N. Y.		2725 16th Ave., S.W., Seattle 4, Wash.	
American Ventilating Hose Co......20		Chic Mat Mat Mfg. Co., Inc......107		Durham Mfg. Co......191	
15 Park Row, New York 17, N. Y.		630 High St., Buffalo 11, N. Y.		500 Main St., Durham, Conn.	
Ansil Chemical Co......168		Chicago Eye Shield Co......I.B.C.		Eagle-Picher Co......33	
Fire Extinguisher Division		2306 Warren Blvd., Chicago 12, Ill.		American Bldg., Cincinnati 1, Ohio	
Marionette, Wis.		*BRANCH OFFICES & DISTRIBUTORS:		Ellwood Safety Appliance Co......130	
BRANCH OFFICES AND DISTRIBUTORS		Boston 10, Mass., 261 Franklin St.		219 Sixth St., Ellwood City, Pa.	
In all Principal Cities		Cincinnati, Ohio, 3231 Fredonia Ave.		Emerson, J. H., Co......188	
Ashland Industries.....69		Detroit 2, Mich., 6527 Hamilton Ave.		22 Cottage Park Ave.,	
5616 S. Ashland Ave., Chicago 36, Ill.		E. Orange, N. J., 491 Prospect St.		Cambridge, Mass.	
Automotive Rubber Co., Inc......148				Fendall Company.....88	
8601 Epworth Blvd., Detroit 4, Mich.				4631 N. Western Ave., Chicago 25, Ill.	
Award Incentives, Inc......200					
160 Broadway, New York 7, N. Y.					

* All Branch Offices are not listed - write Manufacturer for complete list.

DIRECTORY OF ADVERTISERS

Page No.	Page No.
Finnell System, Inc. 45	Buffalo, N. Y. , 1391 Main St.
2203 East St., Elkhart, Ind.	Chicago, Ill., 12201 S. Michigan Ave.
*BRANCH OFFICES: in all Principal Cities.	Detroit, Mich., 2203 Cass Ave.
United States and Canada	Velasco, Texas, Box 243, Brazoria County
Fior-Dry Co. 38	Huntington, W. Va., P.O. Box 1951
2318 Wychitt St., St. Paul 4, Minn.	Inglewood, Calif., 816-D Walnut Ave.
Franklin Research Co. 38	Sellersville, Pa., P.O. Box 246
5134 Lancaster Ave., Philadelphia	Saugus, Mass., 39 Stone St.
BRANCH OFFICES:	Jackson Products 89
Boston 10, Mass., 287 Atlantic Ave.	31739 Mound Rd., Warren, Mich.
Chicago 10, Ill., 417 W. Ohio St.	Johnson Ladder Shoe Co. 53
Cleveland 13, Ohio, 1200 W. 9th St.	311 Eau Claire St., Eau Claire, Wis.
Detroit 26, Mich., 815 Park Ave. Bldg.	Johnson S. C. & Son, Inc. 35
Kansas City 8, Mo., 2035 Main St.	1525 Howe St., Racine, Wis.
Minneapolis 1, Minn., 324 N. First St.	Jones & Co. 90
New York 16, N. Y., 432 4th Ave.	125 Cottin Ave., Rumford, R. I.
Philadelphia 31, Pa., 1450 N. Paxon St.	Jones, C. Walker, Co. 104
San Francisco 11, Calif., 7 Front St.	6135 N. Lambert St., E. Germantown,
Seattle 4, Wash., 509 Maritime Bldg.	Philadelphia 38, Pa.
Gebauer Chemical Co. 190	Junkin Safety Appliance Co. 154
9410 St. Catherine Ave.	930 W. Hill St., Louisville 8, Ky.
Cleveland 4, Ohio	Justrite Mfg. Co. 170
General Bandages, Inc. 71	2061 N. Southport Ave., Chicago
531 Plymouth Ct., Chicago, Ill.	Kent Company 44
Glendale Optical Co. 89	103 Canal St., Rome, N. Y.
232 Liberty Ave., New York 17, N. Y.	Keystone View Co. 198
Graymills Corp. 163	Meadville, Pa.
2006 Ridge Ave., Evanston, Ill.	Kidde, Walter & Co., Inc. 173
Gro-Cord Rubber Co., Lima, Ohio. 124	245 Main St., Belleville 9, N. J.
Guardair Mfg. Co. 163	BRANCH OFFICES:
30 Hollister Ave., Bridgeport 7, Conn.	Atlanta, Ga.
Hild Floor Machine Co. 47	Chicago, Ill.
740 W. Washington Blvd.	Cleveland, Ohio
Chicago 6, Ill.	Dayton, Ohio
*BRANCH OFFICES:	Kansas City, Mo.
Atlanta 1, Ga., 336-350 Marietta St.	Los Angeles, Calif.
Dallas 1, Texas, 2207 Commerce St.	Washington, D. C.
Denver, Colo., 1441-47 Market St.	Kimball Safety Products Co. 102
Detroit 2, Mich., 7644 Woodward Ave.	9310 Wade Park Ave., Cleveland
New Orleans 13, La., 303 3rd St.	Kinner Mfg. Co. 174
New Orleans 12, La., 518 Julia St.	1720 Fields Ave., Columbus 16, Ohio
New York 17, N. Y., 250 E. 43rd St.	Offices and Agents in all Principal Cities
Philadelphia 2, Pa., 1200 Commercial Trust Bldg.	Klear-Yu Products Co. 103
San Francisco, Calif., 420 Market St.	Lincoln Blvd., Middlesex, N. J.
Seattle Wash., 519 White Bldg.	Klein, Mathias & Sons 116
Hillyard Sales Cos. 48	3200 Belmont Ave., Chicago, Ill.
St. Joseph 1, Mo.	Laughlin, Thomas, Co. 138
BRANCH OFFICES:	Portland 6, Maine
New York, N. Y., 1947 Broadway	Leggo, Walter G., Co., Inc. 37
San Francisco, Calif., 470 Alabama St.	101 Park Ave., New York 17, N. Y.
Hoffman Engineering Corp. 155	*BRANCH OFFICES:
Anoka, Minn.	Boston 18, Mass., 202 Southampton St.
Holcomb Safety Garment Co. 111	Chicago 1, Ill., 360 N. Michigan Ave.
118 N. Jefferson St., Chicago 6, Ill.	Cleveland 14, Ohio, 606 Williamson Bldg.
Hollywood Turban Products Co. 108	Detroit 2, Mich., 65 W. Milwaukee Ave.
1104 S. Wabash Ave., Chicago 5, Ill.	Houston 2, Texas, 431 Kress Bldg.
Hood Rubber Co. 107	Los Angeles, Calif., 4016 W. 3rd St.
Watertown, Mass.	Philadelphia 10, Pa., 420 Land Title Bldg.
Huntington Laboratories, Inc. 64	Pittsburgh 22, Pa., 207 Investment Bldg.
Huntington, Ind.	San Francisco 11, Calif., 420 Market St.
BRANCH OFFICE: Toronto, Canada	Washington 5, D. C., 411 Albee Bldg.
Hynson, Westcott & Dunning, Inc. 184	Lehigh Safety Shoe Co. 120-121
Charles & Chase Sts., Baltimore, Md.	Allentown, Pa.
BRANCH OFFICES:	BRANCH OFFICES:
Chicago, Ill., 58 E. Washington St.	St. Louis, Mo., 12th & Spruce Sts.
New York, N. Y., 420 Lexington St.	Lichtman, J. & Sons 104
Hy-Test Div., International Shoe Co.	241 Frelinghuysen Ave., Newark, N. J.
1509 Washington Ave.	Lightfoot Schultz Co. 69
St. Louis 3, Mo.	663 Fifth Ave., New York 22, N. Y.
BRANCH OFFICES: Manchester, N. H.	BRANCH OFFICES:
New York, N. Y., 225 W. 34th St.	Chicago, Ill., 209 S. State St.
Industrial Gloves Co. 101	Harvard, Mass., P.O. Box 156
1723 Garfield Blvd., Danville, Ill.	Milwaukee, Wis., 501 W. Galena St.
BRANCH OFFICE:	Pittsburgh 17, Pa., 6605 Ridgeville St.
Detroit 3, Mich., 16045 Hamilton Ave.	Littell, F. J. Machine Co. 162
Industrial Safety Belt Corp. 114	4127 N. Ravenswood Ave., Chicago
51 Chatham St., Pittsburgh 19, Pa.	Louisville Metal Products Co. 52
Industrial Products Co. 52	11th & Oak St., Louisville 10, Ky.
2820 N. 4th St., Philadelphia 33, Pa.	Macwhyte Company 137
Inland Steel Co. 28	2902 14th Ave., Kenosha, Wis.
38 S. Dearborn St., Chicago 3, Ill.	BRANCH OFFICES:
BRANCH OFFICES:	Chicago 6, Ill., 228 S. Des Plaines St.
Davenport, Iowa	Fr. Worth 1, Texas, P.O. Box 605
Detroit, Mich.	Los Angeles 21, Calif., 2037 Sacramento St.
Indianapolis, Ind.	Minneapolis 3, Minn., 1213 Harmon St.
Kansas City, Mo.	Pittsburgh 19, Pa., 704 Second Ave.
Insto-Gas Corp. 164	Portland 9, Ore., 1603 N.W. 14th Ave.
1977 E. Jefferson Ave., Detroit	San Francisco 7, Calif., 749 Bryant St.
Interstate Drop Forge Co. 147	Seattle 4, Wash., 87 Holgate St.
4073 N. 27th St., Milwaukee 9, Wis.	Magnesium Co. of America 32
Iron Age Div., H. Childs & Co. 131	East Chicago, Ind.
813 Penn Ave., Pittsburgh 22, Pa.	BRANCH OFFICES:
BRANCH OFFICES:	Los Angeles, Calif., 831 S. Flower St.
Birmingham, Ala., 130 Elm St., Mountain Brook	New York, N. Y., 30 Rockefeller Plaza
	Marsh & McLennan, Inc. 196
	231 S. La Salle St., Chicago, Ill.
	Offices in all Principal Cities
	Mesury-Young Co. 41
	76 Roland St.,
	Charleston, Boston, Mass.
	McAn, Thom, Safety Shoe Div. 125
	25 W. 43rd St., New York 18, N. Y.
	BRANCH OFFICES: In Principal Cities
	McDonald, B. F., Co. 97
	5112 S. Hoover St.
	Los Angeles 37, Calif.
	BRANCH OFFICES:
	Houston 6, Texas, 2321 Milam St.
	San Francisco 3, Calif., 1255 Howard St.
	McKay Co. 146
	1005 Liberty Ave., Pittsburgh 22, Pa.
	Medical Supply Co. 186
	1027 W. State St., Rockford, Ill.
	Meiflex Products Co. 30
	410 S. Broadway, Akron 8, Ohio
	BRANCH OFFICES:
	Fort Williams, Ontario, Canada, Box 411
	St. Louis 1, Mo., 1123 Washington Ave.
	Washington, D. C., Peoples Life Ins. Bldg.
	Merrill Brothers 145
	56-28 Arnold Ave., Maspeth, N. Y.
	Metal Arts Co., Inc. 200
	742 Portland Ave., Rochester, N. Y.
	Metallizing Engineering Co. 151
	38-14 30th St., Long Island City, N. Y.
	Milburn Co. 108
	3245 E. Woodbridge, Detroit 7, Mich.
	DISTRIBUTORS:
	Boston 16, Mass., 439 Boylston St.
	Brooklyn, N. Y., 176 Johnson St.
	Chicago 10, Ill., 634 Orleans St.
	Cincinnati 2, Ohio, 29-31 W. 4th St.
	Cleveland, Ohio, 7016 Euclid Ave.
	Los Angeles 37, Calif., 5112 S. Hoover St.
	Pittsburgh, Pa., 901-937 Pennsylvania Ave.
	St. Louis 2, Mo., 217 Lombard St.
	San Francisco 3, Calif., 1255 Howard St.
	Seattle 1, Wash., 115 Blanchard St.
	Mine Safety Appliances Co. I.F.C.
	Pittsburgh, Pa.
	*BRANCH OFFICES:
	Atlanta, Ga.
	Baltimore, Md.
	Boston, Mass.
	Chicago, Ill.
	Houston, Texas
	Los Angeles, Calif.
	New York, N. Y.
	Philadelphia, Pa.
	Salt Lake City, Utah
	Seattle, Wash.
	Mione Mfg. Co., Collingdale, Pa. 68
	Modern Glass Processing Corp. 88
	1545 Schaeffer St., Brooklyn 27, N. Y.
	National Foam System, Inc. 176
	West Chester, Pa.
	National Safe-Line Clamp Co. 145
	11252 Nine Mile Rd., Van Dyke, Mich.
	Newton Engineering Service 52
	3341 N. 29th St., Milwaukee 10, Wis.
	Oakite Products, Inc. 44
	14D Thames St., New York 6, N. Y.
	*BRANCH OFFICES:
	Chicago 11, Ill., Room 1800, Wrigley Bldg.
	Detroit 2, Mich., 3-237 General Motors Bldg.
	Hartford 3, Conn., 410 Asylum St.
	Los Angeles 12, Calif., 1001 E. 1st St.
	Philadelphia 3, Pa., Room 311, Wesley Bldg.
	St. Louis 8, Mo., 703 Continental Bldg.
	Oil-Dri Corp. of America 39
	520 N. Michigan Ave., Chicago 11, Ill.
	Onox, Inc. 72
	121 2nd St., San Francisco 5, Calif.
	BRANCH OFFICES:
	Brooklyn 32, N. Y., Foot of 49th St.
	Cleveland 4, Ohio, 2654 Lisbon Rd.
	Los Angeles 21, Calif., 1248 Wholesale St.
	New Orleans 1, La., 118 N. Front St.
	Operadio Mfg. Co. 202
	103 N. 11th Ave., St. Charles, Ill.
	Overton, R. B., Co. 200
	3003 E. Grand Blvd., Detroit, Mich.
	P.T.I., Inc. 156
	401 Broadway, New York, N. Y.
	Pac-Kit Company 189
	P.O. Box 1306, Greenwich, Conn.
	Packwood, G. H. Mfg. Co. 59
	1545-55 Tower Grove Ave.,
	St. Louis 10, Mo.
	*BRANCH OFFICES:
	Brooklyn 2, N. Y., 270 Hicks St.
	Buffalo, N. Y., 15 Shimerville Rd.
	Chicago 10, Ill., 422 W. Erie St.
	Dallas 8, Texas, 1415 Plowman St.
	Detroit 4, Mich., 5188 Tuxedo Ave.
	Los Angeles 13, Calif., 923 East 3rd St.

* All Branch Offices are not listed — write Manufacturer for complete list.

DIRECTORY OF ADVERTISERS

Page No.		Page No.		Page No.	
	Milwaukee 10, Wis., 3611 N. 37th St.		Silicone Paper Co. of America		United Laboratories, Inc.
	Philadelphia 19, Pa., 2605 Cheltenham Ave.	67	230 Park Ave., New York 17, N. Y.		16801 Euclid Ave., Cleveland 12, Ohio
	Pittsburgh 28, Pa., 205 Barnh. Ave.		Smith, A. & Son, Inc.		U. S. Hoffman Mch. Corp.
	West Hartford 7, Conn., 49 S. Main St.	180	1239 Ridge Ave., Philadelphia, Pa.		111 4th Ave., New York 3, N. Y.
	Paramount Rubber Co.	111	Speedi-Dri Corp.		Branch Offices in all Principal Cities
	10401 Northlawn Ave., Detroit		1210 W. Washington Sq.,		U. S. Rubber Co.
	Patent Scaffolding Co.	51	Philadelphia 5, Pa.		1230 Ave. of the Americas, N.Y., N.Y.
	3821 12th St.		Standard Industrial Products Co.		*BRANCH OFFICES:
	Long Island City 1, N. Y.		1710 Main St., Peoria, Ill.		Atlanta, Ga., 999 Lee St. S.W.
	BRANCH OFFICES:		Standard Safety Equip. Co.		Boston, Mass., 560 Atlantic Ave.
	Atlanta, Ga., 38 Haynes St. N.W.		232 W. Ontario St., Chicago 10, Ill.		Chicago, Ill., Merchandise Mart
	Boston, Mass., 20 Howard St., Roxbury		BRANCH OFFICES:		Dallas, Texas, 4125 Peeler St.
	Chicago, Ill., 1550 Dayton St.		Cleveland, Ohio, 2029 E. 102nd St.		Detroit, Mich., 5850 Cass Ave.
	Cleveland, Ohio, 1516 Scoville Ave.		Newark, N. J., 597 Broadway		Los Angeles, Calif., 784 S. San Pedro St.
	Detroit, Mich., 9030 Lunkin Ave.		Standard Signs, Inc.		New York, N. Y., 191 Hudson St.
	Los Angeles, Calif., 6931 Stanford Ave.		3190 E. 65th St., Cleveland 4, Ohio		Pittsburgh, Pa., 101 Sandusky St.
	Milwaukee, Wis., 837 N. Broadway		Steel Scaffolding Company		Seattle, Wash., 200 Jackson St.
	Philadelphia, Pa., 2835 Bridge St.		856 Humboldt St., Brooklyn 2, N. Y.		St. Louis, Mo., 305 S. Broadway
	Pittsburgh, Pa., 1254 Vostamp St.		Stepan Chemical Co.		U. S. Safety Service Co.
	St. Louis, Mo., 6168 Barmen Ave.		1353 N. North Branch St.,		1215 McGee St., Kansas City 6, Mo.
	San Francisco, Calif., 270 13th St.		Chicago 22, Ill.		*BRANCH OFFICES:
	Perma-Mats Div., Merchants Tire Co. 26		Stonehouse Signs, Inc.		Boston 14, Mass., 751 Little Bldg.
	2710 Washington Ave.,		842 Lorimer St., Denver 4, Colo.		Buffalo, N. Y., 1006 Prudential Bldg.
	St. Louis 3, Mo.		Sugar Beet Products Co.		Chicago, Ill., 175 W. Jackson Blvd., Rm. 1030
	Pittsburgh Plate Glass Co.		Saginaw, Mich.		Cleveland, Ohio, 1810 Euclid Ave.
	632 Duquesneway, Pittsburgh 22, Pa.		BRANCH OFFICES:		Detroit, Mich., 7300 Puritan Ave.
	*BRANCH OFFICES:		Boston 14, Mass., Rm. 552, 60 Boylston St.		Houston 3, Texas, 3326 Canal St.
	Atlanta, Ga.		Chicago 48, Ill., 2725 W. Peterson St.		Los Angeles, Calif., 4508 Crenshaw Blvd.
	Detroit, Mich.		Cincinnati 17, Ohio, 101 Glenridge Pl.		New York, N. Y., 435 Fifth Ave., Rm. 511
	Boston, Mass.		Detroit 1, Mich., 2210 Park Ave.		Pittsburgh, Pa., 207 Investment Bldg.
	Brooklyn, N. Y.		Milwaukee, Wis., 329 E. Wisconsin Ave.		Tulsa, Okla., 319 Castle Bldg.
	Chicago, Ill.		Newark 5, N. J., 110 Edison Place		U. S. Steel Corp.
	Dallas, Texas		Philadelphia 30, Pa., 860 N. 16th St.		Carnegie Bldg., Pittsburgh, Pa.
	Positive Safety Mfg. Co.		Pittsburgh 22, Pa., 608 Keystone Bldg.		*BRANCHES in all Principal Cities
	4408 Perkins Ave., Cleveland 3, Ohio		Waterbury, Conn., 79 N. Main St.		Vaco Products Co.
	Protectoseal Co.		Yonkers 2, N. Y., 30 S. Broadway		317 E. Ontario St., Chicago 11, Ill.
	1928 S. Western Ave., Chicago 8, Ill.		Surety Rubber Co.		Vonnegut Hardware Co.
	BRANCH OFFICES:		Carrollton, Ohio		172 Indianapolis 9, Ind.
	Akron, Ohio		Surdy Mfg. Co.		*BRANCH OFFICES: In Principal Cities
	Cincinnati, Ohio		4139 W. Kinzie St., Chicago 24, Ill.		Wagner Sign Service, Inc.
	Detroit, Mich.		DISTRIBUTORS:		856 S. Hoyne Ave., Chicago 12, Ill.
	Houston, Texas		Atlanta, Ga., 217 Luckie St., N.W.		Wallace Optical Co.
	New York, N. Y.		Charleston (H.), S. C., 160 Meeting St.		1025 Brush St., Detroit 26, Mich.
	Pyrene Mfg. Co.		Indianapolis, Ind., 4138 N. Broadway		Watchemoket Optical Co., Inc.
	583 Belmont Ave., Newark, N. J.		Kansas City 2, Mo., 3613-17 Broadway		W. Exchange St., Providence 3, R. I.
	DISTRIBUTORS: In Principal Cities		Los Angeles 15, Calif., 1224 Wall St.		BRANCH OFFICE:
	Ramsey Sportswear Co., Inc.		Philadelphia, Pa., Fox & Clearfield Sts.		Chicago 2, Ill., 29 E. Madison St.
	19 W. 36th St., New York 18, N. Y.		Salt Lake City, Utah, 69 E. 4th St.		West Disinfecting Co.
	Randolph Laboratories, Inc.		San Francisco, Calif., 3100 19th St.		42-16 West St.
	2 E. Kinzie St., Chicago 11, Ill.		Seattle 1, Wash., 115 Blanchard St.		Long Island City 1, N. Y.
	Randies Mfg. Co.		Waterbury, Conn., 79 N. Main St.		*BRANCH OFFICES:
	Ogdensburg, N. Y.		Taylor, Halsey W., Co.		Birmingham 5, Ala., 1209 1st Ave. S.
	Record Industrial Co.		Warren, Ohio		Cambridge 38, Mass., 49 Fawcett St.
	3301 Arch St., Philadelphia 4, Pa.		Taylor, S. G., Chain Co.		Chicago 32, Ill., 4742-44 So. Kedzie Ave.
	BRANCH OFFICES:		93 141st St., Hammond, Ind.		Cleveland 11, Ohio, 3140-3150 Berea Rd.
	Cedar Grove, N. J., 110 Sunrise Terrace		BRANCH OFFICES:		Dallas 9, Texas, 5414 Maple Ave.
	West Hartford, Conn., 29 Ballard Dr.		Denver, Colo., 1217 California St.		Los Angeles 58, Calif., 2110-14 E. 37th St.
	Reece Wooden Slat Shoe Co.		Houston, Texas, P. O. Box 2136		Philadelphia 43, Pa., 49th & Grays Ave.
	Columbus, Nebr.		Jacksonville, Florida, P. O. Box 4346		St. Louis 3, Mo., 3411 Gratiot St.
	Res-Top, Inc.		Portland, Oregon, 1310 S. W. Alder St.		San Francisco 3, Calif., 921 Bryant St.
	1340 E. 222 St., Euclid, Ohio		Temprite Products Corp.		Seattle 1, Wash., 2924 Western Ave.
	Rose Mfg. Co.		P. O. Box 72-P, E. Maple Rd.,		Wheeler Protective Apparel, Inc.
	1731 Arapahoe, Denver 2, Colo.		Birmingham, Mich.		224 W. Huron St., Chicago 10, Ill.
	Ruemelin Mfg. Co.		Tennant, G. H., Co.		*DISTRIBUTORS: In all Principal Cities
	3885 N. Palmer St., Milwaukee		2530 N. Second St.,		Wheeler Corrugating Co.
	Safety Clothing & Equipment Co.		Minneapolis 11, Minn.		Wheeling, W. Va.
	7016 Euclid Ave., Cleveland 3, Ohio		BRANCH OFFICES:		*BRANCH OFFICES: In Principal Cities
	Safety First Supply Co.		Baltimore 18, Md., 806 Venable Ave.		Wiesman Mfg. Co.
	425 Magee St., Pittsburgh 19, Pa.		Cambridge, Mass., 4 Brattle St.		31 S. St. Clair St., Dayton 2, Ohio
	BRANCH OFFICES & DISTRIBUTORS:		Chicago 1, Ill., 333 N. Michigan Ave.		Wildor Mfg. Co., Inc.
	Charleston 24, W. Va., P. O. Box 1007		Detroit 5, Mich., 307-8 Boulevard Bldg.		411 Lexington Ave., Brooklyn 16, N.Y.
	Cleveland 3, Ohio, 5005 Euclid Ave.		Los Angeles 14, Calif., 416 W. 8th St.		Wilkins Co., The
	New York 17, N. Y., 17 E. 42nd St.		Milwaukee, Wis., 312 E. Wisconsin Ave.		248 Groton Ave., Cortland 1, N. Y.
	Wheeling, W. Va., 1 Garland Avenue		New York 17, N. Y., 475 5th Ave.		Williams Jewelry & Mfg. Co.
	Saf-Tv Mfg. Co.		Philadelphia 10, Pa., 1314 Land Title Bldg.		10 S. Wabash Ave., Chicago 3, Ill.
	6200 Wentworth Ave., Chicago 22, Ill.		St. Louis 1, Mo., 455 Paul Brown Bldg.		Willson Products, Inc.
	Salisbury, W. H., & Co.		Westfield, N. J., 108 Central Ave.		205 Washington St., Reading, Pa.
	401 N. Morgan St., Chicago, Ill.		Thompson Mfg. Co., Inc.		*BRANCH OFFICES & DISTRIBUTORS:
	Sawyer, H. M. & Son, Co.		152 W. 12th St., Erie, Pa.		Baltimore Md., 119 E. Lombard St.
	20 Thorndike St.,		Triple Safety Heel Co.		Buffalo, N. Y., 1245 Niagara Ave.
	East Cambridge 41, Mass.		2149 Leland Ave., Chicago 25, Ill.		Chicago, Ill., 634 Orleans St.
	Schrader's, A. Son		Trumbull Mfg. Co.		Cleveland, Ohio, 5005 Euclid Ave.
	470 Vanderbilt Ave., Brooklyn, N. Y.		Warren, Ohio		Detroit, Mich., 2679 E. Grand Blvd.
	Scott Aviation Corp.		Union Wire Rope Corp.		New York, N. Y., 11 S. Williams St.
	Lancaster, N. Y.		2224 Manchester Ave.,		Philadelphia, Pa., 2820 N. 4th St.
	*Distributors in Principal Cities		Kansas City 3, Mo.		Pittsburgh, Pa., 530 Fernando St.
	Seiberling Latex Products Co.		BRANCH OFFICES:		San Francisco, Calif., 275 8th St.
	Erie Ry. & N. 5th St., Akron 9, Ohio		Ashland, Ky.		Toronto, Canada, Herment Bldg.
	Sellstrom Mfg. Co.		Atlanta, Ga.		Wyandotte Chemicals Corp.
	622 N. Aberdeen St., Chicago 22, Ill.		Chicago, Ill.		REPRESENTATIVES: In all Principal Cities
	Sentry Shoe Co.		Houston, Texas		
	119 7th Ave., N., Nashville, Tenn.		Monahans, Texas		

* All Branch Offices are not listed—write Manufacturer for complete list.

	Page No.	Page No.	Page No.	Page No.
A				
Abrasives		Safety Clothing & Equipment Co.	Salisbury, W. H., & Co.	113
American Abrasive Metals Co.		Safety First Supply Co.	U. S. Safety Service Co.	
Bausch & Lomb Optical Co.		U. S. Safety Service Co.		
Abrasive Floor Plate, Steel				
Alan Wood Steel Co.	31	Antiflectics		
Absorbent, Oil and Grease		Aloe, A. S. Co.		
Canfield Oil Co.	40	Bullard, E. D. Co.		
Diversy Corp.	40	Chesterbrough Mfg. Co.		
Dr-Rite Co.	40	Davis Emergency Equip. Co., Inc.		
Eagle-Picher Co.	33	Hynson, Westcott & Dunning, Inc.	184	
Finnell System, Inc.		McDonald, B. F. Co.		
Flor-Dry Co.	38	Mine Safety Appliances Co.		
Industrial Products Co.		Safety First Supply Co.		
League, Walter G. Co., Inc.		U. S. Safety Service Co.		
Oil-Diri Corp. of America	39	Aprons		
Safety First Supply Co.		Advance Glove Mfg. Co.		
Speedi-Dri Corp.	36	American Optical Co.		
Surtz Mfg. Co., Inc.		Buhrke, R. H. Co.		
U. S. Safety Service Co.		Bullard, E. D. Co.		
Wandotte Chemicals Corp.	34	Chicago Eye Shield Co.		
Accident Prevention Service		Davis Emergency Equip. Co., Inc.		
National Safety Council		Holcomb Safety Garment Co.		
Inc.	203-242	Industrial Gloves Co.	101	
Acid Handling Utensils		Industrial Products Co.		
Automotive Rubber Co., Inc.	148	Kimball Safety Products Co.		
Adhesive Plaster		Klear-Vu Products Co., Inc.	103	
Bullard, E. D. Co.		McDonald, B. F. Co.		
Davis Emergency Equip. Co., Inc.		Milburn Co.		
Industrial Products Co.		Mine Safety Appliances Co.		
McDonald, B. F. Co.		Safety Clothing & Equipment Co.		
Medical Supply Co.		Safety First Supply Co.	96	
Mine Safety Appliances Co.		Sawyer, H. M., & Son Co.		
Safety First Supply Co.		Standard Safety Equipment Co.		
U. S. Safety Service Co.		U. S. Safety Service Co.		
Agitator, Cleaning		West Disinfecting Co.		
Graymills Corp.	163	Wheeler Protective Apparel, Inc.	105	
Air Blast Valves		Arresters, Flame		
Littell, F. J., Machine Co.		Protectoseal Co.	175	
Air Ejectors		Artificial Respiration Trainer		
Benjamin Electric Mfg. Co.	152	Bullard, E. D. Co.		
Littell, F. J., Machine Co.		McDonald, B. F. Co.		
Schrader's, A., Son Co.	153	Mine Safety Appliances Co.		
Air Filters		Safety First Supply Co.		
Bullard, E. D. Co.	93	Athlete's Foot Retardant		
Copput Engineering Corp.	18	Bullard, E. D. Co.		
Davis Emergency Equip. Co., Inc.		Dodge, C. S. Co.		
McDonald, B. F. Co.		Hillyard Sales Co.		
Safety First Supply Co.		Industrial Products Co.		
Air Shield		McDonald, B. F. Co.		
Guardair Mfg. Co.	163	Milburn Co.		
Alarms, Carbon Monoxide		Oncor, Inc.	72	
McDonald, B. F. Co.		Safety Clothing & Equipment Co.		
Mine Safety Appliances Co.		West Disinfecting Co.		
Alarms, Combustible Gas		Awards, Prize		
Bullard, E. D. Co.		Award Incentives	200	
Davis Emergency Equip. Co., Inc.		Metal Arts Co., Inc.	200	
McDonald, B. F. Co.		Williams Jewelry & Mfg. Co.	198	
Mine Safety Appliances Co.		I		
U. S. Safety Service Co.		Badges and Buttons		
Alarms, Fire		Award Incentives	200	
C.O.Two Fire Equip. Co.	169	Metal Arts Co., Inc.	200	
Davis Emergency Equip. Co., Inc.		Williams Jewelry & Mfg. Co.	198	
Safety First Supply Co.		Bags, Linemen's Glove		
U. S. Safety Service Co.		Bashlin, W. M. Co.		
Anemometers		Buhrke, R. H. Co.	115	
Mine Safety Appliances Co.		Davis Emergency Equip. Co., Inc.		
Safety First Supply Co.		Industrial Gloves Co.		
Willson Products, Inc.		Industrial Products Co.		
Anti-Fogging Compounds for Goggles		McDonald, B. F. Co.		
Acme Protection Equip. Co.		Mine Safety Appliances Co.		
American Optical Co.		Safety First Supply Co.		
Bausch & Lomb Optical Co.		Salisbury, W. H., & Co.	113	
Bullard, E. D. Co.		U. S. Safety Service Co.		
Davis Emergency Equip. Co., Inc.		Bags, Linemen's Tool		
Industrial Products Co.		Bashlin, W. M. Co.	115	
Kimball Safety Products Co.		Buhrke, R. H. Co.	115	
McDonald, B. F. Co.		Bullard, E. D. Co.		
Mine Safety Appliances Co.		Davis Emergency Equip. Co., Inc.		
Bandages, First Aid		Industrial Products Co.		
Aloe, A. S. Co.		Klein, Mathias & Sons		
Bullard, E. D. Co.		McDonald, B. Co.		
Davis Emergency Equip. Co., Inc.		McDonald, B. F. Co.		
General Bandages, Inc.	187	Mine Safety Appliances Co.		
Industrial Products Co.		Safety Clothing & Equipment Co.		
McDonald, B. F. Co.		Safety First Supply Co.		
Medical Supply Co.		U. S. Safety Service Co.		
Mine Safety Appliances Co.		Blankets, Fireproofed		
Safety Clothing & Equipment Co.		American Optical Co.		
Safety First Supply Co.		Bullard, E. D. Co.		
U. S. Safety Service Co.		Davis Emergency Equip. Co., Inc.		
Barrel Lifters		Holcomb Safety Garment Co.		
Industrial Products Co.		Industrial Gloves Co.		
Safety First Supply Co.		Industrial Products Co.		
Barrel and Drum Movers		Kimball Safety Products Co.		
Industrial Products Co.		McDonald, B. F. Co.		

Please mention National Safety News when writing any of these companies.

Classified Section

Page No.	Page No.	Page No.	Page No.
U. S. Safety Service Co. Wagner Sign Service, Inc. 197	Safety Clothing & Equipment Co. Safety First Supply Co. U. S. Safety Service Co.	Sawyer, H. M., & Son Co. Standard Safety Equipment Co. U. S. Safety Service Co. West Disinfecting Co.	Klear-Vu Products Co., Inc. 103 McDonald, B. F., Co. Ramsey Sportswear Co., Inc. 100 Randles Mfg. Co. Safety Clothing & Equipment Co. Safety First Supply Co. Standard Safety Equipment Co. U. S. Safety Service Co. Wheeler Protective Apparel, Inc.
Burners, Gas Coppus Engineering Corp.	Carriers for Cylinders Industrial Products Co. Safety First Supply Co. U. S. Safety Service Co.	Clothing, Fireproofed Advance Glove Mfg. Co. American Industrial Safety Equip. Co. American-LaFrance-Foamite Corp. American Optical Co. 80 Bullard, E. D., Co. Davis Emergency Equip. Co., Inc. Holcomb Safety Garment Co. Industrial Gloves Co. Industrial Products Co. Kimball Safety Products Co. 102 McDonald, B. F., Co. Milburn Co. Safety Clothing & Equipment Co. Safety First Supply Co. Standard Safety Equipment Co. U. S. Safety Service Co. Wheeler Protective Apparel, Inc. 105	Collectors, Dust Hild Floor Machine Co. Ruemelin Mfg. Co. Safety First Supply Co. Surtz Mfg. Co., Inc. U. S. Hoffman Machinery Corp. 21
Cabinets, Towel West Disinfecting Co.	Cement for Repairing Fabrics U. S. Safety Service Co.	Clothing, Industrial American Optical Co. Safety First Supply Co. Sawyer, H. M., & Son Co. 109 U. S. Safety Service Co.	Collectors, Fume Mine Safety Appliances Co. Ruemelin Mfg. Co. Safety First Supply Co.
Cable, Wire American Chain & Cable Co. 143 MacWhyrte Company 137 Union Wire Rope Corp. 141	Chain Columbus-McKinnon Chain Corp. 139 McKay Co. 146 Taylor, S. G., Chain Co. 144	Clothing, Linemen's American Optical Co. Industrial Products Co. Safety Clothing & Equipment Co. Safety First Supply Co. Sawyer, H. M., & Son Co. 109 U. S. Safety Service Co.	Connecting Links Interstate Drop Forge Co. 147
Cable Clamps Laughlin, Thomas Co. 138 National Safe-Line Clamp Co. 145	Chains, Sling American Chain & Cable Co. 140 Columbus-McKinnon Chain Corp. 139 McKay Co. Taylor, S. G., Chain Co.	Clothing, Protective Advance Glove Mfg. Co. American Industrial Safety Equipment Co. American Optical Co. 80-B.C. Bullard, E. D., Co. Chicago Eye Shield Co. Davis Emergency Equip. Co., Inc. Glendale Optical Co. Holcomb Safety Garment Co. Industrial Gloves Co. Industrial Products Co. Kimball Safety Products Co. 102 McDonald, B. F., Co. Milburn Co. Mine Safety Appliances Co., I.F.C. Safety Clothing & Equipment Co. Safety First Supply Co. Sawyer, H. M., & Son Co. 109 Standard Safety Equipment Co. U. S. Safety Service Co. West Disinfecting Co. Wheeler Protective Apparel, Inc. 105	Containers, Explosive Liquid Bullard, E. D., Co. Industrial Products Co. Justrite Mfg. Co. 170 Protectoseal Co. 175 Safety First Supply Co. U. S. Safety Service Co.
Cable Connector Interstate Drop Forge Co. 147 Jackson Products Mine Safety Appliances Co.	Chairs, Safety, Boatswain Burkhe, R. H., Co. Industrial Products Co. Safety Clothing & Equipment Co. Safety First Supply Co. U. S. Safety Service Co.	Clothing, Rubber American-LaFrance-Foamite Corp. Bullard, E. D., Co. Mine Safety Appliances Co. Safety First Supply Co. Sawyer, H. M., & Son Co. 109	Cover Lens American Industrial Safety Equipment Co. American Optical Co. Bausch & Lomb Optical Co. Bullard, E. D., Co. Chicago Eye Shield Co. Dockson Corp. Fendall Co. Industrial Products Co. Jackson Products Kimball Safety Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Modern Glass Processing Corp. Safety First Supply Co. U. S. Safety Service Co. Wallace Optical Co. Watchemoket Optical Co. 88 Willson Products, Inc.
Cable Tester Mine Safety Appliances Co.	Clamps, Rail Industrial Products Co. Safety Clothing & Equipment Co. Safety First Supply Co. 160 Standard Safety Equipment Co.	Cleaning Compounds Diversey Corp. 42 Dolge, C. B., Co. Finnell Systems, Inc. Hild Floor Machine Co. Hillyard Sales Co. Huntington Laboratories, Inc. Legge, Walter G., Co. 37 Oakite Products, Inc. 44 Packwood, G. H., Mfg. Co. U. S. Safety Service Co. West Disinfecting Co. Wyandotte Chemicals Corp.	Cover Lifter McDonald, B. F., Co.
Cans, Safety Buffalo Fire Appliance Corp. Bullard, E. D., Co. Dayton-Harker Co. Industrial Products Co. Justrite Mfg. Co. 170 McDonald, B. F., Co. Mine Safety Appliances Co. Protectoseal Co. 175 Safety Clothing & Equipment Co. Safety First Supply Co. Standard Safety Equipment Co. U. S. Safety Service Co.	Clamps, Sockets and Eyebolts Laughlin, Thomas Co. 138 MacWhyrte Company 145 Merrill Brothers National Safe-Line Clamp Co. 145	Cleaning Machines, Floor Breuer Electric Mfg. Co. 20 Finnell System, Inc. 45 Hild Floor Machine Co. 47 Hillyard Sales Co. Kent Co., Inc. 44 Tennent, G. H., Co. 46 West Disinfecting Co.	Curtains, Fireproofed Davis Emergency Equip. Co., Inc. Industrial Gloves Co. Industrial Products Co. Kimball Safety Products Co. Safety Clothing & Equipment Co. Smith, A., & Son Co., Inc. 108 Standard Safety Equipment Co. U. S. Safety Service Co. Wheeler Protective Apparel, Inc. 105
Canvas, Fireproofed Safety First Supply Co. Wheeler Protective Apparel, Inc.	Cleaning Compounds Diversey Corp. 42 Dolge, C. B., Co. Finnell Systems, Inc. Hild Floor Machine Co. Hillyard Sales Co. Huntington Laboratories, Inc. Legge, Walter G., Co. 37 Oakite Products, Inc. 44 Packwood, G. H., Mfg. Co. U. S. Safety Service Co. West Disinfecting Co. Wyandotte Chemicals Corp.	Cleaning Systems, Central Vacuum U. S. Hoffman Machinery Corp. 21	Curtains, Welder's American Optical Co. Bullard, E. D., Co. Davis Emergency Equip. Co., Inc. Industrial Gloves Co. Industrial Products Co. Kimball Safety Products Co. Safety Clothing & Equipment Co. Smith, A., & Son Co., Inc. 108 Standard Safety Equipment Co. U. S. Safety Service Co. Wheeler Protective Apparel, Inc. 105
Caps for Women American Optical Co. Bullard, E. D., Co. Chic Maid Hat Mfg. Co., Inc. 107 Hollywood Turban Products Co. 108 Industrial Products Co. Klear-Vu Products Co., Inc. 103 McDonald, B. F., Co. Ramsey Sportswear Co., Inc. 100 Randles Mfg. Co. 98 Safety Clothing & Equipment Co. Safety First Supply Co. Standard Safety Equipment Co. U. S. Safety Service Co.	Climbers for Linemen Bashlin, W. H., Co. 115 Industrial Products Co. Klein, Mathias, & Sons 116 Mine Safety Appliances Co. Safety First Supply Co. U. S. Safety Service Co.	Clothing, Acid Proof American Optical Co. Bullard, E. D., Co. Chicago Eye Shield Co. Davis Emergency Equip. Co., Inc. Holcomb Safety Garment Co. Industrial Products Co. McDonald, B. F., Co. Milburn Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. Safety First Supply Co.	De-Greasing Tanks Graymills, Corp. 163
Car, Hopper Closer Industrial Products Co. Safety First Supply Co. Standard Safety Equipment Co. Trumbull Mfg. Co. 159	Cleaning Machines, Floor Breuer Electric Mfg. Co. 20 Finnell System, Inc. 45 Hild Floor Machine Co. 47 Hillyard Sales Co. Kent Co., Inc. 44 Tennent, G. H., Co. 46 West Disinfecting Co.	Clothing for Women Workers American Optical Co. Bullard, E. D., Co. Industrial Gloves Co. Industrial Products Co. Kimball Safety Products Co.	Deodorizing Appliances West Disinfecting Co.
Car Door Opener Industrial Products Co. Safety First Supply Co.	Cleaning Systems, Central Vacuum U. S. Hoffman Machinery Corp. 21		Detectors, Carbon Monoxide Davis Emergency Equip. Co., Inc. McDonald, B. F., Co. Mine Safety Appliances Co., I.F.C. U. S. Safety Service Co. 77
Carboy Drainer Industrial Products Co. Safety Clothing & Equipment Co. Safety First Supply Co. Standard Safety Equipment Co. U. S. Safety Service Co.	Climbers for Linemen Bashlin, W. H., Co. 115 Industrial Products Co. Klein, Mathias, & Sons 116 Mine Safety Appliances Co. Safety First Supply Co. U. S. Safety Service Co.		
Carboy, Tiller Industrial Products Co. Safety Clothing & Equipment Co. Safety First Supply Co. Standard Safety Equipment Co. Thompson Mfg. Co., Inc. 147	Clothing, Acid Proof American Optical Co. Bullard, E. D., Co. Chicago Eye Shield Co. Davis Emergency Equip. Co., Inc. Holcomb Safety Garment Co. Industrial Products Co. McDonald, B. F., Co. Milburn Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. Safety First Supply Co.		
Carboy, Truck Industrial Products Co. Safety First Supply Co.	Clothing, Rubber American-LaFrance-Foamite Corp. Bullard, E. D., Co. Mine Safety Appliances Co. Safety First Supply Co. Sawyer, H. M., & Son Co. 109		
Carrier, Bottle Benton & Associates 191	Clothing, Weatherproof American-LaFrance-Foamite Corp. American Optical Co. Bashlin, W. H., Co. Bullard, E. D., Co. Holcomb Safety Garment Co. Industrial Products Co. Kimball Safety Products Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. Safety First Supply Co. Sawyer, H. M., & Son Co. 109 Standard Safety Equipment Co. U. S. Safety Service Co.		
Carriers, Drum and Barrel Industrial Products Co.	Clothing for Women Workers American Optical Co. Bullard, E. D., Co. Industrial Gloves Co. Industrial Products Co. Kimball Safety Products Co.		

Numbers indicate pages on which the Product is described or illustrated in this Issue

Please mention National Safety News when writing any of these companies.

Classified Section

Page No.	Page No.	Page No.	Page No.
Detectors, Fire	Eye Shades, Non-Flammable	Fire Alarms	
American-LaFrance-Foamite Corp. 169	American Industrial Safety Equip. Co. 66	C.O.-Two Fire Equip. Co., Inc. 169	
C.O.-Two Fire Equip. Co., Inc. 169	American Optical Co. 65	Davis Emergency Equip. Co., Inc. 169	
Davis Emergency Equip. Co., Inc. 169	Chicago Eye Shield Co. 65	Safety First Supply Co. 169	
	Davis Emergency Equip. Co., Inc. 65	U. S. Safety Service Co. 169	
	Dockson Corp. 65		
Detectors, Gas	Drinking Fountains, Portable	Fire Detectors	
Bullard, E. D., Co. 169	Bullard, E. D., Co. 65	American-LaFrance-Foamite Corp. 169	
Davis Emergency Equip. Co., Inc. 169	Safety Clothing & Equipment Co. 65	C.O.-Two Fire Equip. Co., Inc. 169	
McDonald, B. F., Co. 169	Safety First Supply Co. 65		
Mine Safety Appliances Co., I.F.C. 169		Fire Doors	
U. S. Safety Service Co. 169		Kinnear Mfg. Co. 174	
	Dust Arresters		
Disinfectants and Deodorants	Hild Floor Machine Co. 21	Fire Extinguishers	
Diversey Corp. 21	Ruemelin Mfg. Co. 21	Asul Chemical Co. 168	
Dolge, C. B., Co. 21	Safety First Supply Co. 21	American Industrial Safety Equip. Co. 168	
Hillyard Sales Co. 21		American-LaFrance-Foamite Corp. 171	
Huntington Laboratories, Inc. 21	Dust Collectors	Buffalo Fire Appliance Corp. 179	
Oakite Products, Inc. 21	Hild Floor Machine Co. 21	C.O.-Two Fire Equip. Co., Inc. 170	
West Disinfecting Co. 21	Ruemelin Mfg. Co. 21	Dayton-Harker Co. 170	
Wandotte Chemicals Corp. 21	Safety First Supply Co. 21	Kidde, Walter & Co., Inc. 170	
	U. S. Hoffman Machinery Corp. 21	National Foam System, Inc. 170	
		Protectoseal Co. 178	
Dispensary Equipment	Dust Control Systems	Pyrene Mfg. Co. 178	
Aloe, A. S., Co. 185	U. S. Hoffman Machinery Corp. 21	Randolph Laboratories, Inc. 177	
Davis Emergency Equip. Co., Inc. 185		Safety Clothing & Equipment Co. 177	
Mine Safety Appliances Co., Inc. 185	Dust Counter	Safety First Supply Co. 177	
Safety First Supply Co. 185	Bausch & Lomb Optical Co. 21	U. S. Safety Service Co. 177	
	Industrial Products Co. 21		
Dispensers, Goggle Cleaning	Mine Safety Appliances Co., I.F.C. 21	Fire Extinguisher Recharges and Equipment	
Bullard, E. D., Co. 70	Willson Products, Inc. 21	American-LaFrance-Foamite Corp. 176	
Dow-Gorning Corp. 70		Pyrene Mfg. Co. 176	
Mine Safety Appliances Co. 70	Dust Hoods	Fire Extinguisher Seal	
Silicone Paper Co., of America 67	American Industrial Safety Equip. Co. 67	Safety First Supply Co. 176	
Safety First Supply Co. 67	American Optical Co. 67		
U. S. Safety Service Co. 67	Bullard, E. D., Co. 67	Fire Extinguishing Systems, Carbon Dioxide	
Wallace Optical Co. 67	Chicago Eye Shield Co., Inc. 67	American-LaFrance-Foamite Corp. 173	
Wilkins Co., The 67	Dockson Corp. 67	C.O.-Two Fire Equip. Co., Inc. 173	
	Holcomb Safety Garment Co. 67	Kidde, Walter & Co., Inc. 173	
Dispensers, Salt Tablet	Industrial Products Co. 67		
Ace Manufacturing Co. 187	Jackson Products 67	Fire Foam	
Bullard, E. D., Co. 187	McDonald, B. F., Co. 67	American-LaFrance-Foamite Corp. 176	
Davis Emergency Equip. Co., Inc. 187	Mine Safety Appliances Co. 67	National Foam System, Inc. 176	
Dockson Corp. 187	Safety Clothing & Equipment Co. 67	Fire Foam Generators	
Industrial Products Co. 187	Safety First Supply Co. 67	American-LaFrance-Foamite Corp. 176	
McDonald, B. F., Co. 187	Standard Safety Equipment Co. 67	Safety First Supply Co. 176	
Medical Supply Co. 187	U. S. Safety Service Co. 67		
Mine Safety Appliances Co. 187	Wheeler Protective Apparel, Inc. 67	Fire Hose	
Safety Clothing & Equipment Co. 187		American-LaFrance-Foamite Corp. 176	
Safety First Supply Co. 187	Dust Suction Equipment	Dayton-Harker Co. 176	
Standard Safety Equip. Co. 187	Breuer Electric Mfg. Co. 20	Melflex Products Co. 176	
U. S. Safety Service Co. 187	Ruemelin Mfg. Co. 20	Safety First Supply Co. 176	
	Safety First Supply Co. 20	U. S. Safety Service Co. 176	
Dispensers, Sanitary Napkins			
West Disinfecting Co. 187	Dusters, Rock	Fire Pumps	
	Mine Safety Appliances Co. 187	Safety First Supply Co. 176	
Dispensers, Soap			
Dolge, C. B., Co. 187	Ear Stopples	Fire Trucks	
Finnell System, Inc. 187	Davis Emergency Equip. Co., Inc. 187	American-LaFrance-Foamite Corp. 176	
Hillyard Sales Co. 187	Industrial Products Co. 187	C.O.-Two Fire Equip. Co., Inc. 176	
Packwood, G. H., Mfg. Co. 187	McDonald, B. F., Co. 187	Safety First Supply Co. 176	
Safety First Supply Co. 187	Mine Safety Appliances Co. 187		
Sugar Beet Products Co. 187	Safety Clothing & Equipment Co. 187	Fire Trucks, Mine	
U. S. Safety Service Co. 187	Safety First Supply Co. 187	Mine Safety Appliances Co. 176	
West Disinfecting Co. 187	U. S. Safety Service Co. 187		
		First Aid Cabinets	
Display, Changeable Copy	Electrode Holders	Aloe, A. S., Co. 185	
Wagner Sign Service, Inc. 197	Dockson Corp. 185	Bullard, E. D., Co. 191	
	Industrial Products Co. 185	Davis Emergency Equip. Co., Inc. 191	
Dockboards	Jackson Products 185	Durham Mfg. Co. 191	
Alan Wood Steel Co. 32	Kimball Safety Products Co. 185	Industrial Products Co. 191	
Magnesium Co., of America 32	McDonald, B. F., Co. 185	Medical Supply Co. 191	
	Safety Clothing & Equipment Co. 185	Mine Safety Appliances Co. 191	
Door Panic Device	Safety First Supply Co. 185	Safety Clothing & Equipment Co. 191	
Vonnegut Hardware Co. 172	U. S. Safety Service Co. 185	Safety First Supply Co. 191	
		Safety Mfg. Co., Inc. 191	
Doors, Fire & Service	Emblems, Safety	U. S. Safety Service Co. 191	
Kinnear Mfg. Co. 174	Award Incentives 200		
	Metal Arts Co., Inc. 200	First Aid Kits	
Dryers, Face & Hand	Standard Sign, Inc. 198	Aloe, A. S., Co. 185	
Electric	Williams Jewelry & Mfg. Co. 198	American-LaFrance-Foamite Corp. 185	
Chicago Hardware Foundry Co. 66		Bullard, E. D., Co. 185	
Dryers, Electric, Safety Equipment	Explosives Carrier	Davis Emergency Equip. Co., Inc. 185	
Chicago Hardware Foundry Co. 66	Mine Safety Appliances Co. 185	Durham Mfg. Co. 185	
	Safety First Supply Co. 185	Industrial Products Co. 185	
Drinking Caps, Paper	U. S. Safety Service Co. 185	Medical Supply Co. 185	
Medical Supply Co. 185		Mine Safety Appliances Co. 185	
Safety Clothing & Equipment Co. 185	Exterminator, Rodent	Safety Clothing & Equipment Co. 185	
	Dolge, C. B., Co. 185	Safety First Supply Co. 185	
Drinking Fountains	West Disinfecting Co. 185		
Bradley Washfountain Co. 185		Fans, Exhaust	
Mine Safety Appliances Co. 185		Coppus Engineering Corp. 18	
Safety Clothing & Equipment Co. 185		Mine Safety Appliances Co. 18	
		Safety First Supply Co. 18	
		U. S. Safety Service Co. 18	
		Willson Products, Inc. 18	
		Fans, Ventilating	
		Coppus Engineering Corp. 18	
		Mine Safety Appliances Co. 18	
		Feeders, Punch Press	
		Littell, F. J., Machine Co. 162	
		Films or Slides, Safety	
		American Optical Co. 228-229-230-231	
		National Safety Council, Inc. 228-229-230-231	
		Filters, Air Device	
		Bullard, E. D., Co. 185	
		Chicago Eye Shield Co. 185	
		Coppus Engineering Corp. 185	
		Safety First Supply Co. 185	

Numbers indicate pages on which the Product is described or illustrated in this Issue

Please mention National Safety News when writing any of these companies.

Classified Section

Page No.	Page No.	Page No.
Safety Clothing & Equipment Co. Safety First Supply Co. Slatrom Mfg. Co. Standard Safety Equipment Co. Sury Mfg. Co., Inc. U. S. Safety Service Co.	Finnell System, Inc. Franklin Research Co. Hild Floor Machine Co. Hillward Sales Co. Huntington Laboratories, Inc. Johnson, S. C., & Son, Inc. Kent Mfg. Co. Legge, Walter G., Co., Inc. Masury-Young Co. Oakite Products, Inc. Tennent, G. H., Co. West Disinfecting Co. Wyandotte Chemicals Corp.	West Disinfecting Co. Wyandotte Chemicals Corp. Glass, Safety Modern Glass Processing Corp. Pittsburgh Plate Glass Co. Glass, Welding Plates and Lenses American Industrial Safety Equip. Co. American Optical Co. Bausch & Lomb Optical Co. Bullard, E. D., Co. Chicago Eye Shield Co. Davis Emergency Equip. Co., Inc. Duckson Corp. Fendall Co. Industrial Products Co. Jackson Products Kimball Safety Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Modern Glass Processing Corp. Safety Clothing & Equipment Co. Safety First Supply Co. Standard Safety Equipment Co. U. S. Safety Service Co. Wallace Optical Co. Watchemoket Optical Co. Wilson Products, Inc.
First Aid Materials Aloe, A. S., Co. Bullard, E. D., Co. Cheesebrough Mfg. Co. Davis Emergency Equip. Co., Inc. Durham Mfg. Co. Gebauer Chemical Co. General Bandage Inc. Industrial Products Co. McDonald, B. F., Co. Medical Supply Co. Mine Safety Appliances Co. Pas-Kit Co. Safety Clothing & Equipment Co. Safety First Supply Co. Sury Mfg. Co., Inc. U. S. Safety Service Co.	Floor Coating, Conductive, Non-Slip Legge, Walter G., Co., Inc. Floor Plate, Abrasive Alan Wood Steel Co. Floor Plate, Steel Alan Wood Steel Co. Inland Steel Co. U. S. Steel Corp. Flooring Materials, Safety Alan Wood Steel Co. American Abrasive Metals Co. Inland Steel Co. Legge, Walter G., Co., Inc. Mellex Products Co. Safety First Supply Co. Sury Mfg. Co., Inc. United Laboratories, Inc. U. S. Safety Service Co. U. S. Steel Corp.	Goggles, Cleaning Cabinets American Optical Co. Dow-Corning Corp. McDonald, B. F., Co. Mine Safety Appliances Co. Safety First Supply Co. Silicone Paper Co. of America U. S. Safety Service Co. Wallace Optical Co. Wilkins Co., The Goggle Cleaning Acme Protection Equip. Co. American Optical Co. Dow-Corning Corp. Mine Safety Appliances Co. Silicone Paper Co. of America U. S. Safety Service Co. Wallace Optical Co. Wilkins Co., The Goggle Valves Bailey, Wm. M., Co.
First Aid Room Equipment Aloe, A. S., Co. Bullard, E. D., Co. Davis Emergency Equip. Co., Inc. Industrial Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. Safety First Supply Co. Sury Mfg. Co., Inc. First Aid Trainer Bullard, E. D., Co. McDonald, B. F., Co. Safety First Supply Co.	Fluorescent Tube Disposal Standard Safety Equipment Co. Fog-Nozzle Blaw-Knox Co. Foot Guards Bullard, E. D., Co. Ellwood Safety Appliance Co. Industrial Gloves Co. Industrial Products Co. Kimball Safety Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. Safety First Supply Co. Standard Safety Equipment Co. U. S. Safety Service Co. Wheeler Protective Apparel, Inc.	Gloves, Linemen's Protector American Optical Co. Bashlin, W. M., Co. Bullard, E. D., Co. Davis Emergency Equip. Co., Inc. Mine Safety Appliances Co. Safety First Supply Co. Salisbury, W. H., & Co., Inc. U. S. Safety Service Co. Gloves, Rubber or Synthetic American Industrial Safety Equip. Co. American Optical Co. Bullard, E. D., Co. Davis Emergency Equip. Co., Inc. Dayton-Harker Co. Hood Rubber Co. Holcomb Safety Garment Co. Industrial Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. Safety First Supply Co. Salisbury, W. H., & Co., Inc. Seiberling Latex Products Co. Standard Safety Equip. Co. Sury Rubber Co. U. S. Safety Service Co.
Flags, Danger Buhrie, R. H., Co. Bullard, E. D., Co. Industrial Products Co. Safety First Supply Co. Stonehouse Signs, Inc. U. S. Safety Service Co. Flags, Safety Award Incentives Industrial Products Co. Safety Clothing & Equipment Co. Safety First Supply Co. U. S. Safety Service Co. Flashlights Justite Mfg. Co. Safety First Supply Co. Flashlight Batteries Industrial Products Co. McDonald, B. F., Co. Safety First Supply Co. Flashlights, Permissible Bullard, E. D., Co. Davis Emergency Equip. Co., Inc. McDonald, B. F., Co. Mine Safety Appliances Co. Safety First Supply Co. U. S. Safety Service Co. Floodlights, Emergency American LaFrance Foamite Corp. Bullard, E. D., Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. Safety First Supply Co. Floor Cleaning Machines, Electric Breuer Electric Mfg. Co. Finnell System, Inc. Hild Floor Machine Co. Hillward Sales Co. Huntington Laboratories, Inc. Kent Mfg. Co. Legge, Walter G., Co., Inc. Tennent, G. H., Co. West Disinfecting Co.	Fume Collectors Mine Safety Appliances Co. Ruemein Mfg. Co. Safety First Supply Co. Fumigants Dolge, C. B., Co. Hillward Sales Co. West Disinfecting Co. Fungicides Dolge, C. B., Co. Hillward Sales Co. West Disinfecting Co. Furnaces, Metal Melting Insto-Gas Corp. Fuse Pullers Industrial Products Co. Safety First Supply Co. G Gage Glasses Duckson Corp. Sellsstrom Mfg. Co. Gages, Hydraulic Schrader's A. Son Gages, Static Pressure Newton Engineering Service Germinicides Dolge, C. B., Co. Davis Emergency Equip. Co., Inc. Huntington Laboratories, Inc. Oakite Products, Inc.	Guards, Chip and Spark Chicago Eye Shield Co. Industrial Products Co. Safety First Supply Co. Standard Safety Equipment Co. U. S. Safety Service Co. Guards for Edged Tools Buhrie, R. H., Co. Industrial Products Co. Safety First Supply Co. Guards, Foot and Toe Bullard, E. D., Co. Chicago Eye Shield Co. Ellwood Safety Appliance Co. Industrial Gloves Co. Industrial Products Co. Kimball Safety Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. Safety First Supply Co. Standard Safety Equipment Co. U. S. Safety Service Co. Wheeler Protective Apparel, Inc. Guards, Glass Gage Industrial Products Co. Guards, Gear Industrial Products Co. Safety First Supply Co. Sury Mfg. Co., Inc.

Numbers indicate pages on which the Product is described or illustrated in this Issue

Please mention National Safety News when writing any of these companies.

Classified Section

Page No.	Page No.	Page No.	Page No.
Safety First Supply Co. Standard Safety Equipment Co. Sury Mfg. Co., Inc. U. S. Safety Service Co.	Mine Safety Appliances Co. Safety Clothing & Equipment Co. Safety First Supply Co. Standard Safety Equipment Co. U. S. Safety Service Co. Wheeler Protective Apparel, Inc.	Safety First Supply Co. Sury Mfg. Co., Inc. U. S. Safety Service Co.	Davis Emergency Equip. Co., Inc. Dockson Corp. Industrial Products Co. McDonald, B. F., Co. Mine Safety Appliances Co., I.F.C. Safety Clothing & Equipment Co. Safety First Supply Co. U. S. Safety Service Co. Willson Products, Inc.
Ladder Step, Safety Res-Tep, Inc. 53	Leather, Safety Clothing American Optical Co. Bullard, E. D., Co. Colonial Tanning Co. 92 Lichtman, J., & Sons 104 Wheeler Protective Apparel, Inc.	Lighting Equipment, Industrial Benjamin Electric Mfg. Co. Safety Clothing & Equipment Co. Sury Mfg. Co., Inc.	Masks, Ammonia Gas Acme Protection Equip. Co. 89 American Industrial Safety Equip. Co. American-LaFrance-Foamite Corp. Bullard, E. D., Co. Chicago Eye Shield Co. Davis Emergency Equip. Co., Inc. Dayton-Harker Co. Industrial Products Co. McDonald, B. F., Co. Mine Safety Appliances Co., I.F.C. Safety Clothing & Equipment Co. Safety First Supply Co. Scott Aviation Corp. Standard Safety Equipment Co. U. S. Safety Service Co. Willson Products, Inc.
Ladders, Aluminum Louisville Metal Products Co. 52 Safety First Supply Co.	Leggings Advance Glove Mfg. Co. American Optical Co. Bullard, E. D., Co. Chicago Eye Shield Co. Davis Emergency Equip. Co., Inc. Holcomb Safety Garment Co. Industrial Gloves Co. Kimball Safety Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. 96 Safety First Supply Co. Sawyer, H. M., & Son Co. Snellstrom Mfg. Co. Standard Safety Equipment Co. U. S. Safety Service Co. Wheeler Protective Apparel, Inc. 105	Lighting Plants, Portable Safety First Supply Co.	Masks, Babbitting American Optical Co. Bullard, E. D., Co. Chicago Eye Shield Co. Davis Emergency Equip. Co., Inc. Industrial Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. Safety First Supply Co. U. S. Safety Service Co.
Ladders, Rolling Bil-Jar, Inc. Louisville Metal Products Co. 52 Patent Scaffolding Co. 51	Lens Cleaner Acme Protection Equip. Co. American Optical Co. Bullard, E. D., Co. Dow-Corning Corp. Hillyard Sales Co. Mine Safety Appliances Co. Safety First Supply Co. Silicone Paper Co. of America. 67 Wallace Optical Co. 69-71	Line Hose Salisbury, W. H., & Co. 113 U. S. Safety Service Co.	Masks, Carbon Monoxide Acme Protection Equip. Co. American-LaFrance-Foamite Corp. Bullard, E. D., Co. Davis Emergency Equip. Co., Inc. Industrial Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Safety First Supply Co. Scott Aviation Corp. U. S. Safety Service Co. Willson Products, Inc.
Ladders, Safety American Abrasive Metals Co. Bullard, E. D., Co. Dayton Safety Ladder Co. 54 Louisville Metal Products Co. 52 Patent Scaffolding Co. 51 Safety Clothing & Equipment Co. Safety First Supply Co. U. S. Safety Service Co.	Lens Coating Wallace Optical Co. 90	Linemen's Rubber Protective Devices Bullard, E. D., Co. Davis Emergency Equip. Co., Inc. Industrial Products Co. McDonald, B. F., Co. Safety First Supply Co. Salisbury, W. H., & Co. 113 U. S. Safety Service Co.	Masks, Hose (Fresh Air) Acme Protection Equip. Co. Bullard, E. D., Co. Chicago Eye Shield Co. Davis Emergency Equip. Co., Inc. Industrial Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Safety First Supply Co. Standard Safety Equipment Co. U. S. Safety Service Co.
Lamp Guards Industrial Products Co. Sollstrom Mfg. Co. U. S. Safety Service Co.	Lens, Goggles American Industrial Safety Equip. Co. American Optical Co. Bausch & Lomb Optical Co. Bullard, E. D., Co. Chicago Eye Shield Co. Davis Emergency Equip. Co., Inc. Dockson Corp. Fendall Co. Industrial Products Co. Kimball Safety Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Modern Glass Processing Corp. Safety Clothing & Equipment Co. Safety First Supply Co. Sollstrom Mfg. Co. Standard Safety Equipment Co. U. S. Safety Service Co. Wallace Optical Co. 83 Willson Products, Inc.	Linemen's Tools Bashlin, W. M., Co. 115 Klein, Mathias, & Sons 116	Masks, Hose (Supplied Air) Acme Protection Equip. Co. American Optical Co. Bullard, E. D., Co. Chicago Eye Shield Co. Davis Emergency Equip. Co., Inc. Industrial Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Safety First Supply Co. Scott Aviation Corp. 91 Standard Safety Equipment Co. U. S. Safety Service Co. Willson Products, Inc.
Lamps, Electric Benjamin Electric Mfg. Co. Bullard, E. D., Co. Davis Emergency Equip. Co., Inc. McDonald, B. F., Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. Sury Mfg. Co., Inc. U. S. Safety Service Co.	Lens, Inspection American Optical Co. Bausch & Lomb Optical Co. Industrial Products Co. Safety Clothing & Equipment Co. Safety First Supply Co. Sury Mfg. Co., Inc. U. S. Safety Service Co.	Lockers and Hangers for Clothing Safety Clothing & Equipment Co. Safety First Supply Co.	Masks, Organic Vapor Acme Protection Equip. Co. American Optical Co. Bullard, E. D., Co. Chicago Eye Shield Co. Cover, H. S. Davis Emergency Equip. Co., Inc. Industrial Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Safety First Supply Co. Scott Aviation Corp. Standard Safety Equipment Co. U. S. Safety Service Co. Willson Products, Inc.
Lamps, Explosion Proof Benjamin Electric Mfg. Co. Bullard, E. D., Co. McDonald, B. F., Co. Sury Mfg. Co., Inc. U. S. Safety Service Co.	Lens, Prescription American Industrial Safety Equip. Co. American Optical Co. Bausch & Lomb Optical Co. Chicago Eye Shield Co. Kimball Safety Products Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. U. S. Safety Service Co. Wallace Optical Co.	Magnifiers American Optical Co. Bausch & Lomb Optical Co. Industrial Products Co. Safety Clothing & Equipment Co. Safety First Supply Co. Standard Safety Equipment Co. Sury Mfg. Co., Inc. U. S. Safety Service Co.	Materials Handling Devices Merrill Brothers 145
Lamps, Extension Industrial Products Co. McDonald, B. F., Co. U. S. Safety Service Co.	Lifters, Vacuum Industrial Products Co. McDonald, B. F., Co.	Manometer Newton Engineering Service	
Lamps, Miners' McDonald, B. F., Co. Mine Safety Appliances Co.		Markers, Pipe Adhesive Brady, W. H., Co. 54	
Lamps, Portable Electric, Hand Mine Safety Appliances Co.		Markers, Traffic Line Industrial Products Co. 52 Stonehouse Signs, Inc.	
Lamps, Safety Benjamin Electric Mfg. Co. Bullard, E. D., Co. Davis Emergency Equip. Co., Inc. Industrial Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. U. S. Safety Service Co.		Masks, Abrasive Blasting American Optical Co. Bullard, E. D., Co. Chicago Eye Shield Co. Davis Emergency Equip. Co., Inc. Industrial Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Safety First Supply Co. Standard Safety Equipment Co. U. S. Safety Service Co. Willson Products, Inc.	
Lanterns, Carbide Justrite Mfg. Co.		Masks, Acid Gas Acme Protection Equip. Co. 89 Bullard, E. D., Co. Chicago Eye Shield Co. Davis Emergency Equip. Co., Inc. Industrial Products Co. McDonald, B. F., Co. Mine Safety Appliances Co., I.F.C. Safety First Supply Co. Scott Aviation Corp. Standard Safety Equipment Co. U. S. Safety Service Co. Willson Products, Inc.	
Lanterns, Electric American-LaFrance-Foamite Corp. Bullard, E. D., Co. Davis Emergency Equip. Co., Inc. Industrial Products Co. Justrite Mfg. Co. 170 McDonald, B. F., Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. Safety First Supply Co. U. S. Safety Service Co.		Masks, All-Service Acme Protection Equip. Co. American Industrial Safety Equip. Co. American-LaFrance-Foamite Corp. Bullard, E. D., Co. Chicago Eye Shield Co.	
Leathers, Hand American Optical Co. Buhke, R. H., Co. Bullard, E. D., Co. Davis Emergency Equip. Co., Inc. Holcomb Safety Garment Co. Industrial Gloves Co. Industrial Products Co. 101 Kimball Safety Products Co. McDonald, B. F., Co.			

Numbers indicate pages on which the Product is described or illustrated in this Issue

Please mention National Safety News when writing any of these companies.

Page No.	Page No.	Page No.	Page No.
Mattings, Floor and Stair American Mat Corp. _____ Melflex Products Co. _____ Safety Clothing & Equip. Co. _____	Paint Pittsburgh Plate Glass Co. _____ 17 Tennent, G. H., Co. _____	Protectors for Linemen American Optical Co. _____ Bullard, E. D., Co. _____ Davis Emergency Equip. Co., Inc. _____ Industrial Products Co. _____ Safety Clothing & Equipment Co. _____ Safety First Supply Co. _____ Salisbury, W. H. & Co., Inc. _____ U. S. Safety Service Co. _____ 113	Respirators, Dusts—Type A & Lead-Combination Acme Protection Equip. Co. _____ American Optical Co. _____ Bullard, E. D., Co. _____ Chicago Eye Shield Co. _____ Cover, H. S. _____ 65 Davis Emergency Equip. Co., Inc. _____ Industrial Products Co. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co., I.F.C. _____ Safety First Supply Co. _____ Standard Safety Equipment Co. _____ U. S. Safety Service Co. _____ Willson Products, Inc. _____ 78
Mats, Standing American Mat Corp. _____ 32 Durable Mat Co. _____ 30 Industrial Products Co. _____ Melflex Products Co. _____ Perma-Mats Div., Merchants _____ Tire Co. _____ 26 Safety First Supply Co. _____ Sury Mfg. Co., Inc. _____ U. S. Safety Service Co. _____	Paint, Abrasive Resurfacing American Abrasive Metals Co. _____ Legge, Walter G., Co., Inc. _____ Safety Clothing & Equip. Co. _____ Safety First Supply Co. _____ Tennent, G. H., Co. _____ United Laboratories, Inc. _____ U. S. Safety Service Co. _____	Protectors, Knee Bullard, E. D., Co. _____ General Scientific Equip. Co. _____ Holcomb Safety Garment Co. _____ Industrial Gloves Co. _____ Industrial Products Co. _____ Kimball Safety Products Co. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co. _____ Safety Clothing & Equipment Co. _____ Safety First Supply Co. _____ Standard Safety Equipment Co. _____ Wheeler Protective Apparel, Inc. _____	Respirators, Dusts—Lead American Optical Co. _____ Bullard, E. D., Co. _____ Chicago Eye Shield Co. _____ Cover, H. S. _____ 85 Davis Emergency Equip. Co., Inc. _____ Industrial Products Co. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co., I.F.C. _____ Safety Clothing & Equipment Co. _____ Safety First Supply Co. _____ Standard Safety Equipment Co. _____ U. S. Safety Service Co. _____ Willson Products, Inc. _____ 78
Mats, Switchboard American Mat Corp. _____ Industrial Products Co. _____ Melflex Products Co. _____ Safety First Supply Co. _____ Salisbury, W. H. & Co., Inc. _____ 113	Partitions, Rolling Kinnear Mfg. Co. _____	Publications, Safety National Safety Council _____ Inc. _____ 203 to 240	Respirators, Fume Acme Protection Equip. Co. _____ American Industrial Safety Equip. Co. _____ American Optical Co. _____ Bullard, E. D., Co. _____ Chicago Eye Shield Co. _____ Cover, H. S. _____ Davis Emergency Equip. Co., Inc. _____ Industrial Products Co. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co., I.F.C. _____ Safety Clothing & Equipment Co. _____ Safety First Supply Co. _____ Standard Safety Equipment Co. _____ U. S. Safety Service Co. _____ Willson Products, Inc. _____ 79
Mauls, Wood Safety First Supply Co. _____	Pipe Markers Brady, W. H., Co. _____ 54	Pumps, Acid Bullard, E. D., Co. _____ Safety Clothing & Equipment Co. _____ Safety First Supply Co. _____ Thompson Mfg. Co., Inc. _____ 147	Respirators, Gas American Industrial Safety Equip. Co. _____ American Optical Co. _____ Bullard, E. D., Co. _____ Chicago Eye Shield Co. _____ Cover, H. S. _____ Davis Emergency Equip. Co., Inc. _____ Industrial Products Co. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co., I.F.C. _____ Safety Clothing & Equipment Co. _____ Safety First Supply Co. _____ Scott Aviation Corp. _____ Sellstrom Mfg. Co. _____ Standard Safety Equipment Co. _____ U. S. Safety Service Co. _____ Willson Products, Inc. _____ 79
Metal, Expanded American Abrasive Metals Co. _____ Safety First Supply Co. _____	Platforms, Scaffold Louisville Metal Products Co. _____ 52 Patent Scaffolding Co. _____ 51	Pumps, Oxygen Davis Emergency Equip. Co., Inc. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co. _____ Safety First Supply Co. _____	Respirators, Mists Acme Protection Equip. Co. _____ American Optical Co. _____ Bullard, E. D., Co. _____ Chicago Eye Shield Co. _____ Cover, H. S. _____ Davis Emergency Equip. Co., Inc. _____ Industrial Products Co. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co., I.F.C. _____ Safety Clothing & Equipment Co. _____ Safety First Supply Co. _____ Scott Aviation Corp. _____ U. S. Safety Service Co. _____ Willson Products, Inc. _____ 79
Metal, Perforated for Guards Safety First Supply Co. _____ U. S. Safety Service Co. _____	Platforms, Steel Alan Wood Steel Co. _____ Inland Steel Co. _____ U. S. Steel Corp. _____	Rail Punch Mine Safety Appliances Co. _____	Resuscitation Equipment Bullard, E. D., Co. _____ Davis Emergency Equip. Co., Inc. _____ Emerson, J. H. _____ 188 McDonald, B. F., Co. _____ Mine Safety Appliances Co., I.F.C. _____ Safety First Supply Co. _____ U. S. Safety Service Co. _____
Movers, Railway Car Industrial Products Co. _____ Safety First Supply Co. _____ Standard Safety Equipment Co. _____	Poster Service American Optical Co. _____ National Safety Council _____ Inc. _____ 240-241-242 Willson Products, Inc. _____	Ramps and Runways Alan Wood Steel Co. _____ American Abrasive Metals Co. _____ Inland Steel Co. _____ U. S. Safety Service Co. _____ U. S. Steel Corp. _____	Rock Dusters Mine Safety Appliances Co. _____
N	Projectors, Film Strip American Optical Co. _____ Bausch & Lomb Optical Co. _____ Cueradio-Mfg. Co. _____	Reflector, Lamp Sury Mfg. Co., Inc. _____	Rope, Wire American Chain & Cable Co., Inc. _____
Nets, Rope Safety Safety First Supply Co. _____	Projectors, Sound Slidefilm Operadio Mfg. Co. _____ 202	Regulators, Gas Dockson Corp. _____ Safety First Supply Co. _____	
O	Protectors, Arm Advance Glove Mfg. Co. _____ American Optical Co. _____ Bullard, E. D., Co. _____ Davis Emergency Equip. Co., Inc. _____ Holcomb Safety Garment Co. _____ Industrial Gloves Co. _____ Industrial Products Co. _____ Kimball Safety Products Co. _____ Klear-Vu Products Co., Inc. _____ 103 McDonald, B. F., Co. _____ Milburn Co. _____ Mine Safety Appliances Co. _____ Safety Clothing & Equip. Co. _____ Safety First Supply Co. _____ Standard Safety Equipment Co. _____ U. S. Safety Service Co. _____ West Disinfecting Co. _____ Wheeler Protective Apparel, Inc. _____ 105	Rescue Apparatus, Diving and Underwater Davis Emergency Equip. Co., Inc. _____ Mine Safety Appliances Co. _____ Safety First Supply Co. _____	
Oil Cans, Long Handle Industrial Products Co. _____	Protectors, Ear Bullard, E. D., Co. _____ Industrial Products Co. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co. _____ Safety Clothing & Equipment Co. _____ Safety First Equipment Co. _____ Standard Safety Equipment Co. _____ U. S. Safety Service Co. _____ Wheeler Protective Apparel, Inc. _____	Respirators, Air-Line American Optical Co. _____ Bullard, E. D., Co. _____ Chicago Eye Shield Co. _____ Davis Emergency Equip. Co., Inc. _____ Industrial Products Co. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co., I.F.C. _____ Safety Clothing & Equipment Co. _____ Safety First Supply Co. _____ Scott Aviation Corp. _____ 91 Standard Safety Equipment Co. _____ U. S. Safety Service Co. _____ Willson Products, Inc. _____	
Oxygen Breathing Apparatus Bullard, E. D., Co. _____ Davis Emergency Equip. Co., Inc. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co. _____ Safety First Supply Co. _____	Protectors, Finger American Optical Co. _____ Bullard, E. D., Co. _____ Davis Emergency Equip. Co., Inc. _____ Industrial Gloves Co. _____ Industrial Products Co. _____ Kimball Safety Products Co. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co. _____ Safety Clothing & Equipment Co. _____ Safety First Supply Co. _____ Standard Safety Equipment Co. _____ U. S. Safety Service Co. _____ Wheeler Protective Apparel, Inc. _____	Respirators, Dust—Type A American Industrial Safety Equip. Co. _____ American Optical Co. _____ 81 Bullard, E. D., Co. _____ Chicago Eye Shield Co. _____ Cover, H. S. _____ 95 Davis Emergency Equip. Co., Inc. _____ Industrial Products Co. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co., I.F.C. _____ Safety First Supply Co. _____ Scott Aviation Corp. _____ Standard Safety Equipment Co. _____ U. S. Safety Service Co. _____ Willson Products, Inc. _____ 78	
Oxygen Recorders Davis Emergency Equip. Co., Inc. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co. _____	Pads, Miners' Industrial Products Co. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co. _____ U. S. Rubber Co. _____	Respirators, Lead-Combination Acme Protection Equip. Co. _____ American Optical Co. _____ Bullard, E. D., Co. _____ Chicago Eye Shield Co. _____ Cover, H. S. _____ Davis Emergency Equip. Co., Inc. _____ Industrial Products Co. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co., I.F.C. _____ Safety Clothing & Equipment Co. _____ Safety First Supply Co. _____ Scott Aviation Corp. _____ Standard Safety Equipment Co. _____ U. S. Safety Service Co. _____ Willson Products, Inc. _____ 79	
Oxygen Therapy Apparatus Mine Safety Appliances Co. _____ Safety First Supply Co. _____ Scott Aviation Corp. _____	Pads, Knee Buhke, R. H., Co. _____ Bullard, E. D., Co. _____ Davis Emergency Equip. Co., Inc. _____ Industrial Gloves Co. _____ Industrial Products Co. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co. _____ Safety Clothing & Equip. Co. _____ Safety First Supply Co. _____ Standard Safety Equipment Co. _____ Wheeler Protective Apparel, Inc. _____	Respirators, Mists Acme Protection Equip. Co. _____ American Optical Co. _____ Bullard, E. D., Co. _____ Chicago Eye Shield Co. _____ Cover, H. S. _____ Davis Emergency Equip. Co., Inc. _____ Industrial Products Co. _____ McDonald, B. F., Co. _____ Mine Safety Appliances Co., I.F.C. _____ Safety Clothing & Equipment Co. _____ Safety First Supply Co. _____ Scott Aviation Corp. _____ Standard Safety Equipment Co. _____ U. S. Safety Service Co. _____ Willson Products, Inc. _____ 79	
P			

Please mention National Safety News when writing any of these companies.

Classified Section

[illegible]

Numbers indicate pages on which the Product is described or illustrated in this Issue

Please mention National Safety News when writing any of these companies.

Classified Section

Page No.	Page No.	Page No.	Page No.
Junkin Safety Appliance Co., Inc. 154	Tools, Marking or Stamping Cunningham, M. E., Co. 161	V	Chicago Hardware Foundry Co. 66
McDonald, B. F., Co. Medical Supply Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. Safety First Supply Co. Smith, A., & Son Co., Inc. Standard Safety Equipment Co. U. S. Safety Service Co.	Tools, Non-Ferrous Metal Beryllium Corp. 163 Bullard, E. D., Co. Davis Emergency Equip. Co., Inc. Industrial Products Co. Mine Safety Appliances Co. Safety First Supply Co. Standard Safety Equipment Co.	Vacuummeter Newton Engineering Service	Watchman's Clock Systems Detek Watchclock Corp. 180
Sun Glasses American Optical Co. Modern Glass Processing Corp. Watchmaker Optical Co. Wilson Products, Inc.	Torches, Blow Insto-Gas Corp. 164	Vacuum Cleaners, Industrial Breuer Electric Mfg. Co. 20 Finell System, Inc. 45 Hild Floor Machine Co.	Water Carrier Mine Safety Appliances Co. Safety First Supply Co.
Sweat Bands American Optical Co. Ashland Industries 69 Bullard, E. D., Co. Chicago Eye Shield Co. Davis Emergency Equip. Co., Inc. Dockson Corp. General Bandage, Inc. Industrial Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. Safety First Supply Co. Seltstrom Mfg. Co. Standard Safety Equipment Co. 109 U. S. Safety Service Co. Wilson Products, Inc.	Torches, Welding Dockson Corp. 164 Insto-Gas Corp.	Vacuum Cleaning Systems U. S. Hoffman Machinery Corp. 21	Water Coolers Taylor, Halsey W., Co. 66 Temprite Products Corp. 65
Switchboard Matting American Mat Corp. Industrial Products Co. Meliff Products Co. Safety First Supply Co. Salisbury, W. H., & Co. 113	Towel Cabinets West Disinfecting Co.	Vacuum Lifters Industrial Products Co. Littell, F. J., Machine Co. 162 McDonald, B. F., Co. Safety First Supply Co. Sury Mfg. Co., Inc. U. S. Safety Service Co.	Water Coolers, Explosion-Proof Temprite Products Corp. 65
Syphons, Acid Bullard, E. D., Co. Industrial Products Co. Thompson Mfg. Co., Inc. 147 Safety Clothing & Equipment Co. Safety First Supply Co. Standard Safety Equipment Co. U. S. Safety Service Co.	Towels, Paper West Disinfecting Co.	Valves, Air Blow Schrader's A., Son	Wax Applicators, Floor Doyle, C. B., Co. Finell System, Inc. Hild Floor Machine Co. Hillyard Sales Co. Tennant, G. H., Co.
Tags, Accident Prevention Industrial Products Co. Metal Arts Co., Inc. Mine Safety Appliances Co. Safety First Supply Co. Standard Safety Equipment Co. Stonehouse Signs, Inc. U. S. Safety Service Co.	Towers, Rolling Steel Scaffolding Co. 50	Valves, Gas Main Bailey, Wm. M., Co.	Welder's Protective Equipment American Industrial Safety Equip. Co. American Optical Co. Bullard, E. D., Co. Chicago Eye Shield Co. Davis Emergency Equip. Co., Inc. Dockson Corp. Fendall Co. Holcomb Safety Garment Co. Industrial Gloves Co. Industrial Products Co. Kimball Safety Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Modern Glass Processing Corp. Safety Clothing & Equipment Co. Safety First Supply Co. Seltstrom Mfg. Co. 90 Standard Safety Equipment Co. U. S. Safety Service Co. Wallace Optical Co. Wheeler Protective Apparel, Inc. Wilson Products, Inc.
Tire Chains & Accessories American Chain & Cable Co., Inc. Pyrene Mfg. Co.	Treading Tool, Safety Metalizing Engineering Co., Inc. 151	Valves, Gate American Chain & Cable Co.	Windshield De-Icer Johnson Ladder Shoe Co.
Toe Guards Bullard, E. D., Co. Chicago Eye Shield Co. Elwood Safety Appliance Co. 130 Industrial Gloves Co. Industrial Products Co. McDonald, B. F., Co. Mine Safety Appliances Co. Safety Clothing & Equipment Co. Safety First Supply Co. Standard Safety Equipment Co. 107 U. S. Safety Service Co. Wheeler Protective Apparel, Inc.	Trench Covers Alan Wood Steel Co. American Abrasive Metals Co. Inland Steel Co.	Valves, Oxygen Safety First Supply Co. Scott Aviation Corp.	Wire Rope Fittings American Chain & Cable Co., Inc. 143 Laughlin, Thomas Co. 138 Macwhyle Company National Safe-Line Clamp Co. 145
Toilet Paper West Disinfecting Co.	Trestles, Extension Bil-Jax, Inc. 53 Patent Scaffolding Co. 51 Safety First Supply Co. Steel Scaffolding Co. 50	Vending Machines, Sanitary Napkins West Disinfecting Co.	Workstands, Elevating, Portable & Stationary Bil-Jax, Inc. 53 Patent Scaffolding Co. 51
Tool Holder Cunningham, M. E., Co. 161	Trolley Guard Hanger Mine Safety Appliances Co. Safety First Supply Co.	Ventilating Devices, Portable Coppus Engineering Corp. 18 McDonald, B. F., Co. Mine Safety Appliances Co. I.F.C.	Wrenches, Hopper Car Industrial Products Co. Safety First Supply Co. Standard Safety Equipment Co. Trumbull Mfg. Co. 159
Tools, Linemen's Bashlin, W. M., Co. 115 Davis Emergency Equip. Co., Inc. Industrial Products Co. Klein, Mathias & Sons Safety First Supply Co. U. S. Safety Service Co.	Trophies Award Incentives Metal Arts Co., Inc. Williams Jewelry & Mfg. Co. 198	Ventilating Equipment Coppus Engineering Corp. 18 Mine Safety Appliances Co.	Wrenches, Non-Ferrous Metal Beryllium Corp. 163 Bullard, E. D., Co. Davis Emergency Equip. Co., Inc. Industrial Products Co. Mine Safety Appliances Co. Safety First Supply Co. Standard Safety Equipment Co.
	Trucks, Carboy Industrial Products Co. Mine Safety Appliances Co. Safety First Supply Co. Standard Safety Equipment Co.	Ventilating Hose American Ventilating Hose Co. 20	Washfountain Bradley Washfountain Co. 57
	Trucks, Power Fork Clark Equip., Co. 142	Vision Testing Equipment American Optical Co. Bauch & Lomb Optical Co. Keystone View Co. 178	Washroom Equipment, Industrial Bradley Washfountain Co. 57
	Trucks, Portable Hand American Industrial Safety Equip. Co.		
	Turbines, Steam Coppus Engineering Corp.		
	Type Holders, Steel Cunningham, M. E., Co. 161		
	Uniforms, Industrial Ramsey Sportswear Co., Inc. 100 Randies Mfg., Co. 98		

Numbers indicate pages on which the Product is described or illustrated in this issue

Please mention National Safety News when writing any of these companies.

INDEX OF ADVERTISED PRODUCTS

Page No.	Page No.	Page No.
Absorbents, Oil and Grease..... 33-34-36-38-39-40	Fire Extinguishing Foam..... 176	Mats, Standing..... 26-30-32
Accident Prevention Service..... 203 to 242	Fire Extinguishing Systems, Carbon Dioxide..... 173	Mats, Switchboard..... 113
Acid Pump..... 147	First Aid Kits..... I.F.C.-189-191	Padlocks..... 158
Air Ejectors..... 152	First Aid Materials..... 185-186-187-189-190-191	Paint..... 17
Air Shield, Protective..... 163	First Aid Room Equipment..... 185	Paint, Abrasive..... 25
Anti-Fogging Compound..... 69	Flashlights..... 170	Panic Device..... 172
Antiseptics..... 184	Floor Cleaning Machines, Electric..... 44-45-46-47	Platforms, Scaffold..... 50-51-52-53
Athlete's Foot Retardant..... 72	Floor Finishing Compounds..... 35-37-38-41	Poster Service..... 240-241-242
Awards, Prize..... 198-200	43-45-47-48	Projectors, Sound Slidefilm..... 202
Badges and Buttons..... 198-200	28-29-31	Projectors, Arm..... 101-105
Badges, Identification..... 200	Flooring Materials..... 25-28-29-31-40	Projectors, Finger..... 101
Bags, Linemen's Glove..... 113-115	Foot Guards..... 107-130	Projectors for Linemen..... 113
Bags, Linemen's Tool..... 113-115	Fume Collector..... 21	Publications, Safety..... 203 to 240
Belts, Linemen's..... 115-116	Fungicides..... 72	Respirators..... I.F.C.-78-79-81-95
Belts, Safety..... I.F.C.-114-115	Germicides, Cutting Oil..... 66	Resuscitators..... I.F.C.-188
Blankets, Fireproofed..... 105	Glass, Welding Plates and Lenses..... 79-88	Safety Training Materials..... 203-240
Blankets, Linemen's Rubber..... 113	Gloves and Mittens..... 96-101-104-105	Salt Tablets..... 77-187-188-192
Blast Furnace Equipment..... 157	109-110-B.C.	Salt Tablet Dispensers..... 77-187-192
Blowers, Portable..... 21	Gloves, Linemen's Protector..... 113	Sandals, Shower..... 129
Blowers, Ventilating..... 18	Gloves, Rubber or Synthetic..... 92-107-110-113	Saw, Controlled-Cut..... 156
Boots, Linemen's..... 115	Goggle Cleaning..... 67-69-70-71	Scaffolds, Extension..... 50-51-53
Boots, Rubber..... 118-119-132	Goggle Valves..... 157	Scaffolds, Rolling..... 51-52
Bottle Carrier..... 191	Goggles..... 77-78-79-81-82-83-84-85	Scaffolding, Safety..... 50-51
Breathing Apparatus..... I.F.C.-91	86-87-88-89-90-92-I.B.C.	Screw Driver..... 164
Buckets, Hoisting..... 115	Grating Steel..... 26-27	Scrubbing Machines, Floor..... 44-45-46-47
Buckets & Utensils, Acid Handling..... 148	Guards for Edged Tools..... 115	Shoes, Rubber..... 119-132
Bulletin Boards..... 196-197	Guards, Foot and Toe..... 107-130	Shoes, Safety Toe..... 110-121-122-125-126
Cable, Wire..... 139-140-146	Guards, Grinding Wheel..... 154	127-128-129-131
Cans, Safety..... 170-175	Guards, Guide Pin..... 160	Shoes, Wooden Sole..... 110-129
Caps for Women..... 98-100-103-107-108	Guards, Hand..... 101-105	Shower, Emergency..... 191
Carboy Filter..... 147	Guards, Power Press..... 152-153-154-155	Signs and Signals, Accident Prevention..... 195-197-198
Car, Hopper Closer..... 159	160-161-162	Sleeves, Protective..... 105-113
Chain..... 144-146	Guards, Shin..... 130	Slings, Chain..... 139-140-146
Chains, Sling..... 139-140-146	Hair Guards..... 98-100-103-107-108	Slings, Wire Rope..... 137-141-143
Clamps, Cable..... 138-145-147	Hand Cream, Protective..... 68-106	Smokers' Stand..... 70
Clamps, Rail..... 160	Harness, Industrial Safety..... 115	Soap or Cleanser, Hand..... 59-61-62-63-64
Clamps, Socket and Eyebolts..... 138-145-147	Hats, Safety..... I.F.C.-93-96-111	68-69-106
Cleaners, Vacuum, Industrial..... 20-21	Heels, Shoe, Non-Slip..... 130	Soles, Shoe, Non-Slip..... 123-124
Cleaning Compounds..... 42-44-45-48	Helmets, Sandblast..... 93	Soldering Iron Holder..... 145
Cleaning Machines, Floor..... 44-45-46-47	Helmets, Welding..... 79-87-88-105	Spectacles, Industrial..... 78-I.B.C.
Cleaning Systems, Central Vacuum..... 21	Hoods, Acid..... 93	Sprinkler Systems..... 167
Climbers, Linemen's..... 115-116	Hoods, Dust..... 93	Stair Treads, Safety..... 25-28-29-31
Clothing, Fireproofed..... 80-105	Hoods, Insulator..... 113	Stamps, Steel Marking..... 161
Clothing, Linemen's..... 113-115	Hooks and Snaps..... 140-147	Sterilizing Equipment..... 185
Clothing, Protective..... I.F.C.-80-96-98-99	Hooks, Hoisting..... 140-147	Straps, Safety..... 115-116
100-101-102-103-105-108-109-110	Hose, Ventilating..... 20	Stretcher..... 154
Clothing for Women..... 98-100-103	Hospital Equipment, Industrial..... 185	Sweat Bands..... 69-71-109
Compounds, Floor Finishing..... 35-37-38-41	Indicators, Carbon Monoxide..... I.F.C.-77	Switchboard Matting..... 113
43-45-47-48	Indicators, Gas..... I.F.C.	Tenks, De-Greasing..... 163
Connecting Links..... 147	Inhalator..... I.F.C.-91-188	Tool Holder..... 115
Containers, Explosive Liquid..... 170-175	Instruments, Dust and Fume..... I.F.C.	Tools, Marking or Stamping..... 161
Cover Lens..... 88	Insulating Stools..... 113	Tools, Non-Ferrous Metal..... 163
Curtains, Welding..... 105-180	Insurance Brokers..... 196	Torches, Blow..... 164
Detector, Fire..... 169	Labels, Marking..... 54	Torches, Welding..... 164
Disinfectants and Deodorants..... 72	Ladder Shoes or Feet..... 52-53	Traffic Line Markers..... 52
Dispensary Equipment..... 185	Ladder Step, Safety..... 53	Treading Tool, Safety..... 151
Dispensers, Goggle Cleaning..... 67-69-70-71	Ladders, Rolling..... 53	Trestles, Extension..... 50-51-53
Dispensers, Salt Tablet..... 77-187-192	Ladders, Safety..... 50-51-52-54	Trucks, Power Fork..... 142
Dockboards..... 32	Lanterns, Electric..... 170	Type Holders, Steel..... 161
Doors, Fire..... 174	Leather, Safety Clothing..... 92-104	Vacuum Cleaners, Industrial..... 20-21
Dryers, Face and Hands..... 66	Leggings..... 96-105	Vacuum Cleaning Systems..... 21
Drinking Fountains..... 65-66	Lifters, Vacuum..... 162	Valve, Goggle..... 157
Dust Collectors..... 21	Line Hose..... 113	Ventilating Devices, Portable..... 18-I.F.C.-93
Emblems, Safety..... 198-200	Linemen's Rubber Protective Devices..... 113	Vision Testing Equipment..... 197
Eye Shields..... 77-83-84-85-86-89	Linemen's Tools..... 113-115-116	Walk-Way Surfacing, Non-Slip..... 25-28-29-31
Eye Washing Fountain..... 191	Markers, Pipe System..... 54	Washer, Safety..... 159
Face Shields..... I.F.C.-83-87	Marking Machines, Floor..... 52	Washfountains..... 57
Fans, Exhaust..... 18	Marking Tools..... 161	Watchmen's Clocks..... 180
Fans, Ventilating..... 18	Masks..... I.F.C.-89-91	Welder's Protective Equipment..... 79-87-88-90-105
Feeding Devices, Punch Press..... 162	Materials, Handling Devices..... 145	Wire Rope Fittings..... 138-145
Films or Slides, Safety..... 225-226-227-228		
Fire Doors..... 174		
Fire Extinguishers..... 168-170-171-177-178-179		

• Refer to Directory of Advertisers for Nearest Branch Office •

Advertisers' Index

Page No.		Page No.		Page No.	
Ace Manufacturing Co.	187	Gebauer Chemical Co.	190	Packwood, G. H. Mfg. Co.	59
Acme Protection Equip. Co.	89	General Bandage, Inc.	71	Paramount Rubber Co.	111
Advance Glove Mfg. Co.	110	Glendale Optical Co.	89	Patent Scaffolding Co., Inc.	51
Alan Wood Steel Co.	31	Graymills Corp.	163	Perma-Mats Div., Merchants Tire Co.	26
All American Safety Equipment Co.	162	Gro-Cord Rubber Co.	124	Pittsburgh Plate Glass Co.	17
Aloe, A. S., Co.	185	Guardair Mfg. Co.	163	Positive Safety Mfg., Co.	161
American Abrasive Metals Co.	25	Hild Floor Machine Co.	47	Protectoseal Co., The	175
American Chain & Cable Co., Inc.	140-143	Hillyard Sales Co.	48	Pyrene Mfg. Co.	178
American Industrial Safety Equip. Co.	88	Hoffman Engineering Corp.	155	Ramsay Sportswear Co., Inc.	100
American-LaFrance-Foamite Corp.	171	Holcomb Safety Garment Co.	111	Randles Mfg., Co.	98
American Mat Corp.	32	Hollywood Turban Products Co.	108	Randolph Laboratories, Inc.	177
American Optical Co.	80-81-B.C.	Hood Rubber Co.	107	Record Industrial Co.	128
American Tel. & Tel. Co.	199	Huntington Laboratories, Inc.	64	Reese Wooden Sole Shoe Co.	129
American Ventilating Hose Co.	20	Hynson, Wescott & Dunning, Inc.	184	Res-Tap, Inc.	53
Ansul Chemical Co.	168	Industrial Gloves Co.	126-127	Rose Mfg. Co.	114
Ashland Industries	69	Industrial Safety Belt Co.	101	Ruemelin Mfg. Co.	21
Automotive Rubber Co., Inc.	148	Industrial Products Co.	114	Safety Clothing & Equipment Co.	96
Award Incentives	200	Inland Steel Co.	52	Safety First Supply Co.	160
Bailey, William M., Co.	157	Insto-Gas Corp.	38	Saf-Ty Mfg. Co.	161
Bashlin, W. M., Co.	115	Interstate Drop Forge Co.	164	Salisbury, W. H., & Co.	113
Bausch & Lomb Optical Co.	82	Iron Age Div., H. Childs & Co.	147	Sawyer, H. M., & Son, Co.	109
Beacon Falls Rubber Footwear	132	Jackson Products	131	Schrader's, A., Son	153
Benjamin Electric Mfg. Co.	152	Johnson Ladder Shoe Co.	89	Scott Aviation Corp.	91
Benson & Associates	191	Johnson, S. C., & Son, Inc.	53	Seiberling Latex Products Co.	92
Beryllium Corp.	163	Jones and Company	35	Sellstrom Mfg. Co.	87-90
Bil-Jax, Inc.	53	Jones, C. Walker, Co.	90	Sentry Shoe Co., Divn.	
Blaw-Knox Co.	26-167	Justrite Mfg. Co.	104	General Shoe Corp.	122
Bradley Washfountain Co.	57	Junkin Safety Appliance Co., Inc.	154	Silicone Paper Co. of America	67
Brady, W. H., Co.	54	Kent Company	170	Smith, A. & Son, Inc.	180
Breck, John H., Inc.	106	Keystone View Co.	44	Speedi-Dri Corp.	36
Breuer Electric Mfg. Co.	20-21	Kidde, Walter, & Co., Inc.	198	Stahmer, F. J., Shoe Co.	110
Buffalo Fire Appliance Corp.	179	Kimball Safety Products Co.	173	Standard Industrial Products Co.	70
Buhrke, R. H., Co.	115	Kinnear Mfg. Co.	102	Standard Safety Equipment Co.	
Bullard, E. D., Co.	93	Klear-Vu Products Co., Inc.	174	87-99-107-109-159-188-192	
Cambridge Rubber Co.	123	Klein, Mathias, & Sons	103	Standard Signs, Inc.	198
Canfield Oil Co.	40	Laughlin, Thomas, Co.	116	Steel Scaffolding Co., Inc.	50
Chase Chemical Co.	68	Legge, Walter G., Co., Inc.	138	Stepan Chemical Co.	62
Chemical Service of Baltimore	-43	Lehigh Safety Shoe Co.	37	Stonehouse Signs, Inc.	195
Chesebrough Mfg. Co.	189	Lichtman, J., & Sons	120-121	Sugar Beet Products Co.	61
Chic Maid Hat Mfg. Co., Inc.	107	Lightfoot Schultz Co.	104	Surety Rubber Co.	110
Chicago Eye Shield Co.	I.B.C.	Littell, F. J., Machine Co.	69	Surtly Mfg. Co., Inc.	158
Chicago Hardware Foundry Co.	66	Louisville Metal Products Co.	162	Taylor, Halsey W., Co.	66
Clark Equip. Co.	142	Macwhyle Company	52	Taylor, S. G., Chain Co.	144
Colonial Tanning Co.	92	Marsh & McLennan, Inc.	137	Temprite Products Corp.	65
Columbus-McKinnon Chain Corp.	139	Magnesium Co. of America	32	Tennant, G. H., Co.	46
Consolidated Laboratories, Inc.	47	Marshall & McLennan, Inc.	196	Thompson Mfg. Co., Inc.	147
Coppus Engineering Corp.	18	Masury-Young Company	41	Triple Safety Heel Co.	130
Corbin Cabinet Lock Division,		McAn, Thom, Safety Shoe Div.	125	Trumbull Mfg. Co.	159
American Hardware Corp.	158	McDonald, B. F., Co.	97	Union Wire Rope Corp.	141
C-O-Two Fire Equipment Co.	169	McKay Company	146	United Laboratories, Inc.	40
Cover, H. S.	95	Medical Supply Company	186	U. S. Hoffman Machinery Corp.	131
Cunningham, M. E., Co.	161	Melflex Products Co.	30	U. S. Rubber Co.	118-119-122
Davenport, A. C., & Son, Inc.	196	Merrill Brothers	145	U. S. Safety Service Co.	77
Davis's Gloves, Inc.	109	Metal Arts Co., Inc.	200	U. S. Steel Corp.	29
Davis Emergency Equip. Co., Inc.	187	Metallizing Engineering Co., Inc.	151	U. S. Treasury Dept.	201
Dayton Safety Ladder Co.	54	Milburn Co.	108	Vaco Products Co.	164
Detex Watchclock Corp.	180	Mine Safety Appliances Co.	I.F.C.	Vonnegut Hardware Co.	172
Diversey Corp.	42	Mione Mfg. Co.	68	Wagner Sign Service, Inc.	197
Dockson Corporation	92	Modern Glass Processing Corp.	88	Wallace Optical Co.	90
Dodge, C. B., Co.	66	National Foam System, Inc.	176	Watchemoket Optical Co., Inc.	83-84-85-86
Dow-Corning Corp.	70	National Safe-Line Clamp Co.	145	West Disinfecting Co.	63
Dri-Rite Co.	40	National Safety Council	203 to 242	Wheeler Protective Apparel, Inc.	105
Durable Mat Co.	30	Newton Engineering Service	82	Wheeling Corrugating Co.	27
Durham Mfg. Co.	191	Oakite Products, Inc.	44	Wiesman Mfg. Co.	160
Eagle-Picher Sales Co.	33	Oil-Dri Corp. of America	39	Wilder Mfg. Co., Inc.	145
Elwood Safety Appliance Co.	130	Onox, Inc.	72	Wilkins, The, Co., Inc.	69-71
Emerson, J. H., Co.	188	Operadio Mfg. Co.	202	Williams Jewelry & Mfg. Co.	198
Fendall Company	88	Overton, R. B., Co.	200	Willson Products, Inc.	78-79
Finnell System, Inc.	45	P.T.I., Inc.	156	Wyandotte Chemicals Corp.	34
Flor-Dry Co.	38	Pac-Kit Company	189		
Franklin Research Co.	38				

See Classified Section, Pages 246 to 254

Also Directory Section, Pages 243 to 245



...for Greater

SAFETY
COMFORT
STYLE
DURABILITY

Specify
CESCO
Safety Goggles

made in
3 EYE SIZES
BRIDGE SIZES
TO FIT EVERY WORKER AND
EVERY WORKING CONDITION

*You can rely on CESCO
Safety Goggles for:*

- ★ Impact resistance
- ★ Shock-proof durable construction
- ★ Correct fit
- ★ Good looking, modern design
- ★ Simple lens replacement

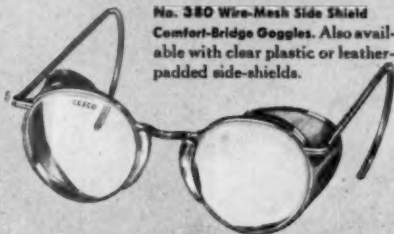
for Information about CESCO's complete line
of Safety Goggles see your CESCO distributor
or write...

**EXCLUSIVE
COMFORT-BRIDGE**

The patented CESCO
COMFORT-BRIDGE is a re-
placeable unit. It distrib-
utes the goggle weight
evenly across the nose for
"floating" fit. Seals nose
area for full protection.



**No. 380 Wire-Mesh Side Shield
Comfort-Bridge Goggles.** Also avail-
able with clear plastic or leather-
padded side-shields.



**No. 371 Sturdy, non-flammable
plastic frame Goggles.**



CHICAGO EYE SHIELD CO. • 2306 Warren Boulevard • Chicago 12, Illinois



CESCO

OFFICES IN: Atlanta, Birmingham, Boston, Buffalo, Cincinnati, Cleveland, Columbus, Detroit, East Orange,
Houston, Los Angeles, Montreal, Philadelphia, Pittsburgh, Seattle, St. Louis, St. Paul, Toledo, Tulsa



CUT
HANDLING COSTS
 with these
COMFORTABLE, HEAVY-DUTY AO GLOVES!

Where back of hand protection is not needed, AO 5X264 and 5X284 gloves can be real money-savers. Cotton fleece backs not only reduce the cost but add flexibility and comfort.

Both gloves are real heavy-duty types with heavier leather in the palm or work area and steel sewed seams. Leather palm extends over the heel of the hand, thus eliminating an uncomfortable bib patch while affording equal protection.

Other features of both gloves include absence of seams around index finger . . . a heavy, reinforcing

steel stapled strap around thumb crotch which reduces wear at a vulnerable point . . . heavyweight safety duck cuffs with heavy tape binding and elastic on back for snug fit.

Ask your AO Safety Products Representative for the 5X284 if you prefer seams on the back of the fingers rather than on the face, as in the 5X264. Costs are equally low and the leather of both gloves is chrome tanned cowhide.

American Optical
COMPANY
SAFETY PRODUCTS DIVISION

SOUTHBRIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL CITIES